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ON THE ALKALOID OF THE BAPTISIA TINCTORIA.

By Francis V. Greene, M.D., U.S. Navy.

Read at the Pharmaceutical Meeting November 18.

In the volume of the "Amer. Jour. Phar." for the year 1862, there appears at page 310 an article on the "Baptisia tinctoria," by B. L. Smedley, in which he claims to have isolated the alkaloid of this plant. The process given is as follows: The root was boiled with water acidulated with hydrochloric acid, and to the strained decoction milk of lime added in slight excess. The copious precipitate produced was collected, washed with distilled water, dried and treated with boiling alcohol. On evaporating the alcohol from the filtered solution there remained an extract of a light yellow color, which was treated with hot water slightly acidulated with sulphuric acid. The solution thus obtained was agitated with animal charcoal, filtered and set aside to crystallize; it yielded perfectly transparent crystals, in plates, similar to those of potassic chlorate. It was further stated that by adding ammonia in slight excess to the above liquid a white, feathery precipitate of the alkaloid was obtained.

A later investigator, J. A. Warner (*op. cit. supra*, 1871, p. 251), after repeating the above process, and ascertaining that the crystalline salt of the first writer was composed entirely of calcium sulphate, announced the following method, by which he had separated what he supposed to be the chloride of the alkaloid of this plant. A concentrated tincture of the root, after being rendered slightly acid by the addition of sulphuric acid, was evaporated to a small bulk, a large quantity of water added and the precipitated resin separated by filtration. To the clear filtrate solution of potassio-mercuric iodide was added in slight excess, the precipitate collected, suspended in water, decomposed by sulphuretted hydrogen and the sulphide of mercury removed by filtration. The filtrate, which was supposed to contain the alkaloid in solution in the

form of an iodide, was then concentrated, carbonate of ammonia added in slight excess and the syrupy liquid shaken with chlorofotm. On separating and evaporating the chloroform solution there remained an amorphous mass, which was dissolved in water acidulated with hydrochloric acid. This solution was treated with animal charcoal, filtered and concentrated to one-third its bulk, when it yielded long, needle-like crystals.

It will be seen from the above process that the opinion in regard to the presence of an alkaloid in this plant was based solely upon the formation of a precipitate when Mayer's test solution was added to an acidified aqueous solution of its root, and consequently, as the crystals obtained in the above manner were not afterwards so treated as to yield the uncombined alkaloid, the results of this examination have not been accepted ("Prac. Pharm.," Parrish, 1874, p. 475) as conclusively establishing the existence of such principle in this root. The following experiments, while rendering it doubtful whether the base of the salt obtained as above was really an alkaloid, prove conclusively that the root of the Baptisia tinctoria does contain such a substance.

A few ounces of the powdered root were exhausted by percolation with distilled water, the percolate filtered, calcined magnesia added and the mixture evaporated to dryness. The magnesia mass was then extracted with absolute alcohol. On evaporating the alcohol from this solution there remained a light yellow amorphous mass, a small portion of which was placed on a piece of reddened litmus paper, and moistened with a drop of distilled water, when a deep blue coloration was produced. A small quantity of the mass was then dissolved in a little distilled water, and the filtered solution placed under a bell-glass over sulphuric acid. On the evaporation of the liquid no crystals could be discovered in the residue. It was therefore re-dissolved in slightly acidulated water, and again evaporated over sulphuric acid, when the mass was still found to be amorphous. It was finally dissolved in distilled water, and the acid solution tested with the various reagents for alkaloids, with the result of giving very decided precipitates with potassio-mercuric iodide, iodine in iodide of potassium solution, potassio-cadmic iodide, phospho-molybdic acid, phospho-tungstate of soda, and tannic and picric acids. The whole of the light yellow amorphous mass was then dissolved in a small quantity of distilled water, a little calcined magnesia added, the mixture evaporated to dryness, when it was suc-

cessively agitated with the different simple solvents with the following results: On evaporating the benzol that had been shaken with the mass, and adding a little distilled water to the small amount of residue, no blue color was communicated to reddened litmus paper, and no precipitates were formed by the acidified solution with the above-mentioned tests. Absence of the blue color and of the precipitates was also noticed when benzin and chloroform, that had been agitated with the mass, were treated in a similar manner. Ether, on the contrary, dissolved the alkaloid from the magnesia mass, the residue therefrom, when moistened with distilled water, staining the reddened litmus paper a deep blue, and when dissolved in acidulated water affording precipitates with the above-named reagents. Hence, it will be seen that we have for this alkaloid solubility in water, alcohol and ether, and insolubility in benzol, benzin and chloroform. From the insolubility of this alkaloid in chloroform it will be evident that the crystals obtained in the process used by the last-mentioned experimenter could not have been those of the chloride of this alkaloid, which, although undoubtedly present in an uncombined state in the concentrated solution, after treatment with carbonate of ammonia was not removed from it by the use of chloroform.

A larger quantity (8 troyounces) of the powdered root of the Baptisia tinctoria was subsequently percolated as before, and the filtered solution evaporated to dryness with calcined magnesia. The dried mass was extracted with 95 per cent. alcohol, and this solution evaporated to a small bulk. Distilled water was added in large quantity, and the liquid filtered to remove the deposited resin. A solution of tannic acid was then added to the clear filtrate as long as a precipitate was formed. When the precipitated tannate had subsided it was transformed to a filter, washed with distilled water, and, while still moist, removed to a mortar, intimately mixed with finely pulverized oxide of lead, and the mass thoroughly dried in a capsule, after which it was extracted with ether. On evaporating the ether there remained a considerable quantity of the same yellowish, semi-transparent, gummy mass that had been obtained in the first experiment. A small portion of this mass, ignited on platinum foil, left no inorganic residue.

In order to separate the alkaloid from the foreign matter contained in this mass it was determined to resort to the use of oleic acid, in the manner lately recommended by L. Wolff ("Am. Jour. Phar.," Jan.,

1878, p. 8). A small quantity of the pure acid was added to the mass contained in a capsule, the contents heated over a water-bath, the oleic acid, containing the alkaloid in the form of an oleate, poured off, and benzin, which dissolves both the acid and the oleate, added to it. The benzin solution was then agitated with distilled water slightly acidulated with hydrochloric acid, and, after the complete separation of the two liquids, the aqueous solution was drawn off. After concentrating this solution it was placed aside to crystallize, and in a few days acicular crystals were formed. The amount of the chloride obtained in this manner proved merely sufficient to establish that this alkaloid is soluble in ammonia, and to determine its character by the precipitates afforded by it with the usual reagents for this class of substances.

Lastly, about 2 troyounces of the finely powdered root were thoroughly moistened with a solution of bicarbonate of soda, the mass placed in a porcelain capsule, heated to dryness on a water-bath, then powdered, transferred to a small percolator and extracted with ether. After evaporating the ether from the percolate, which was of a light yellow color, distilled water was added to the residue and the liquid filtered to separate a yellowish-white resin that had subsided. This aqueous solution of the alkaloid, which was still of a pale yellow color, was then concentrated, carefully neutralized with very dilute hydrochloric acid, repeatedly agitated with successive portions of ether as long as this menstruum removed any coloring matter, and then placed aside, when, after a few days, it yielded crystals, some of which presented the form of perfect octahedra.

THE SUPPOSED ALKALOID OF PODOPHYLLUM.

By John M. Maisch.

Read at the Pharmaceutical Meeting, November 18.

In a paper "on the proximate principles of some berberidaceæ and ranunculaceæ," contributed by the late Prof. Ferdinand F. Mayer to the "American Journal of Pharmacy," 1863, p. 97—100, the following sentences are found: "The rhizome of the mayapple contains both berberina and a colorless alkaloid, a resin, a free acid, a neutral odorous substance volatilizable in white scales and saponin. When the alcoholic extract of the rhizome is freed from alcohol and then mixed with water, the latter dissolves the acid, a considerable quantity

of berberina and saponin, together with some resinous matter. The precipitate left after washing with water, the so-called resinoid podophyllin, is a mixture of a resin and the volatile principle, which are soluble in ether, and a portion soluble in alcohol, which is the other alkaloid in combination with saponin and brown resinous matter."

This being the first published assertion of the presence of an alkaloid in podophyllum, soon after I embraced the opportunity of ascertaining the correctness of the statement as far as the presence of berberina was concerned, by working up the mother-liquor from the preparation of the resin from several hundred pounds of podophyllum. It was evaporated to a small bulk, strongly acidulated by hydrochloric acid, and the resulting crystalline precipitate again dissolved in boiling water and treated with hydrochloric acid. On cooling and standing, deep yellow crystals were obtained, resembling those of commercial hydrochlorate of berberina, but evidently tinged with a notable quantity of brown coloring matter. The crystals, which weighed between one and two drachms, were laid aside for future examination and purification, but no opportunity presenting itself for some years, the substance was eventually lost. However, its appearance was so convincing that it seemed to furnish a valid reason for the addition of hydrochloric acid in preparing the officinal resin of podophyllum ("Amer. Jour. Pharm.," 1863, p. 303).

When about the year 1868 or 1869 I undertook the separation of berberina from the officinal resin prepared by myself, I was surprised at not finding the alkaloid sought; but noticed in its stead the solubility in hot water of that portion of the resin which is soluble in ether (see "Amer. Jour. Pharm.," 1874, p. 231). It is the same substance which was obtained by Wm. Hodgson in 1831 (see " Jour. Phil. Coll. Phar.," III, p. 273), by boiling the rhizome in water, and the laxative properties of which were ascertained by him. The various investigators who have since experimented with podophyllum could either not discover any alkaloid at all, or observed only slight indications of its presence through the reaction with one of the general reagents for alkaloids, notably with Mayer's test liquid. Since, however, the proximate composition of the resin as obtained from the rhizome collected in the spring and autumn varies to some extent, it seemed also possible that the alkaloid, if present, might be found in larger proportion at one period than at another. The valuable paper contributed by Mr. Biddle

at the last meeting (see November number, p. 543) does not completely remove the doubt. The mother-liquors from his experiments were presented and exhibited at the last meeting, and by Mr. Biddle kindly placed at my disposal for further investigation. One of the samples consisted of the concentrated washings of the resin prepared from the rhizome collected in March and April (No. 1); the other was a similar mixture obtained from the rhizome collected in May, July and October (No. 2); the latter had yielded the slightest reaction with Mayer's reagent.

The two samples were set aside for about a week, after which time both had separated a slight precipitate, and the clear liquids yielded *no* turbidity at all with Mayer's test. The liquid No. 1 was somewhat concentrated, allowed to cool, and filtered when it was rendered turbid on the addition of the test. It was now evaporated to a syrupy consistence, and, after standing for about two weeks, filtered from the resinous deposit, *a*, mixed with a little hydrochloric acid, and after 24 hours again filtered from the precipitate, *b*. The filtrate was rendered decidedly turbid on the addition of potassio-mercuric iodide. A portion of the acid liquid was agitated with ether; the remaining portion was first rendered alkaline by the addition of sodium carbonate, and then likewise treated with ether. In both cases, on the complete evaporation of the ether, a yellowish amorphous mass, of a rather disagreeable odor, was left, which was agitated with dilute hydrochloric acid, the solutions being afterwards again tested with Mayer's reagent, without producing the slightest turbidity.

The resinous deposit, *a*, was dissolved in a little alcohol, the solution filtered, the filtrate precipitated by cold water acidulated with hydrochloric acid, and on the following day again filtered. The clear liquid gave no reaction with potassio-mercuric iodide, until after it had been concentrated, cooled and filtered. It was, however, noticed that the turbidity again disappeared, after a short time, while on other occasions it remained. The cause for this different behavior was only determined after many repetitions, and was found to be a slight increase of temperature caused by the radiating heat from a heated iron plate, or by the accidental exposure of the test-tube to the direct rays of the sun; in fact the warmth of the hand was found to be sufficient for making the turbidity disappear entirely or partly. The cold liquid was now completely precipitated by Mayer's test; the precipitate, which

was soluble in hot water, was well washed with cold water, dissolved in a little soda and the solution acidulated with hydrochloric acid; on passing sulphuretted hydrogen through the solution, not the faintest indication of the presence of mercury could be discovered.

The precipitate *b* was boiled with water, and filtered while hot. On cooling, the filtrate became turbid. It was again passed through paper, acidulated, and now yielded no turbidity with Mayer's test, until after it had been further concentrated; the precipitate had precisely the same behavior as indicated above.

The mother-liquor, No. 2, was concentrated and treated with ether and potassio-mercuric iodide; the results were identical with those obtained with No. 1.

It will be observed that none of the experiments detailed above indicate the presence of even traces of an alkaloid, and the cause of the precipitation by Mayer's test must therefore most likely be sought for in the slight solubility in water of podophyllinic acid, one of the constituents of the so-called resin of podophyllum, since even Klunge's test for berberina had proven its entire absence. To test the correctness of this supposition, two samples of podophyllinic acid, prepared from the well-washed officinal resin with hot water and with ether, were dissolved in hot water, the filtered solutions cooled, again filtered, and these filtrates treated with Mayer's reagent, both with and without the addition of hydrochloric acid; but in no case was any turbidity observed. The slight quantity of this resinous compound which remains dissolved in cold water is equally soluble therein after the addition of some potassio-mercuric iodide; but it seems that some other constituent of the rhizome is capable of retaining for some time a somewhat larger portion of podophyllinic acid in complete solution, which is then precipitated by the test liquid mentioned, and perhaps by other salts, without, however, combining with the metal. Hence the clear mother-liquors, if tested shortly after the preparation of resin of podophyllum, may yield a precipitate with the test liquid, which would not be obtainable a few days later.

I believe that it may now be considered proven that the rhizome of podophyllum contains *no alkaloid* at any period of its growth. The yellow crystalline precipitate mentioned above must have doubtless been due to some accidental impurity in the drug (probably hydrastis?), which, from its minuteness, escaped detection before the article was ground.

SUPPOSED TOXIC EFFECT of ARTIFICIAL VANILLIN.

By L. Wolff.

Read at the Pharmaceutical Meeting November 18.

An idea prevailing amongst confectioners and others using vanilla for flavoring purposes that artificial vanillin possessed poisonous properties, as well as a recent caution to druggists, from good authority, not to employ this article for internal use, based, as I was told, on the fact that a whole family was reported to have been poisoned by eating cream puffs flavored with a minute quantity thereof, led me to make a series of experiments with a view of testing this very important point, so as to establish its poisonous properties, if such it possessed, as well as its physiological effect.

I obtained, to that end, a number of young and healthy rabbits, whose average evening temperature I determined (102·75°F.). Not finding any effect from $\frac{1}{4}$ grain administered to one of them by the mouth, noting carefully temperature, appetite and habit of animal, I soon increased the dose to one-half, three-quarters and one grain, finding again but little change with these doses, certainly none which would show a deleterious action of the vanillin, and noticing only with the larger doses a slight increase in temperature (1° to 2°). I further increased the dose to two grains, which, though slightly elevating the temperature, did rather augment than impair the appetite, and showed a marked increase in the vivacity of the animal. To obviate the possibility of the vanillin not being absorbed in the alimentary canal, I njected hypodermically, at first a quarter and subsequently half a grain of it, dissolved in water, to another of the rabits, with the same negative result as to its poisonous nature, observing, however, as in the larger doses by the mouth, a decided aphrodisiac effect in the animals.

Encouraged by these negative results on the rabbits, I commenced to take the same myself, first in $\frac{1}{32}$, then $\frac{1}{24}$, $\frac{1}{12}$, $\frac{1}{8}$, $\frac{1}{4}$, $\frac{1}{2}$, and even one grain doses, without experiencing any notable effect, taking again the thermometer as guide in my experiments. An increased dose of two grains proved no more effective, though it appeared to produce a slightly higher temperature in the evening.

Its physiological effect seemed that of a nerve stimulant, manifesting itself in a little accelerated circulation, slight trembling, and the night's rest disturbed by dreams. The increase of appetite was quite perceptible, as well as the absence of gastric disturbances.

To be certain that with slowly-increased doses I was not gradually accustoming myself to the use of it I desisted for one week, and then again took it in grain doses without finding bad effects from it. The constant use of it for three weeks gave rise to no symptoms of an accumulative character. That, also, the absence of any symptoms of poisoning in me was not possibly due to an individual immunity on my part, I demonstrated by giving it in grain doses to some of my friends, who experienced no more effect from it than I did myself.

In summing up the results so obtained, I do not hesitate to state that the artificial vanillin, such as I obtained from Messrs. Fritzsche Bros., New York, who are the agents for the sale of Dr. J. W. Haarmann's vanillin in this country is, in doses in which it is employed for flavoring purposes, certainly devoid of any toxic effects on the human organism; that in its physiological action it is identical with the natural vanillin as contained in the bean, and that if above-stated poisonous effects were observed in persons eating cream puffs flavored therewith, the poisonous cause must be looked for in other ingredients of the cream puffs, or most probably in the quantity of the confection consumed.

In conclusion, I would state that amongst the many uses of artificial vanillin in pharmacy I have found it most serviceable in preparing the "Trochisci Potassii Chloratis" of the Pharmacopœia, which it leaves beautifully white and of a prominent and agreeable taste of vanilla; and I submit below the formula for them as employed by me.

℞	Potassium chlorate, ...	lbs. iv
	Powdered sugar, ...	lbs. xvi
	Vanillin, ...	grs. xv

Mucilage of acacia *q. s.* to make into a mass, which is to be divided into lozenges of 25 grains each.

Philadelphia, November, 1879.

SOLUTION OF PERCHLORIDE OF IRON.

BY PHIL. HOGLAN.

Mr. E. B. Shuttleworth gives a new mode of preparing this solution in the "Journal" for March, 1879, p. 141, with the recommendation that others among your readers give their experience on the process.

I have made some of the solution, in accordance with Mr. Shuttleworth's directions, and find the plan operates successfully, giving a solu-

tion answering to all the tests as laid down in the Pharmacopœia. My apparatus consisted simply of a funnel and filter paper. Having dissolved the iron in the muriatic acid, and to the solution added the additional acid, I poured the liquid on a filter and allowed it to pass into the nitric acid placed in a mortar. The preparation was completed in a few minutes.

I was induced to apply Mr. Shuttleworth's process in the preparation of Monsel's solution and met with the happiest result. I believe the process the best that has ever yet been given, and with the author of the method am satisfied that the same principle, of reversing the order of mixing the liquids, may be applied to other preparations.

Newcomerstown, O., Nov. 13th, 1879.

REMARKS ON PILLS.

"Hold fast to that which is good."

By William B. Thompson.

Read at the Pharmaceutical Meeting November 18.

The variety of pill-forms is increasing, and the apothecary is growing desperate thereat.

It is not necessary to specify the various shapes, but they are sufficiently numerous already to be a source of vexation to the dispenser.

Let us briefly consider some of them.

The chief claim of the "lenticular" or compressed—*no excipient*—may captivate the unreflective portion of the medical profession, but will not impress with favor the man who thinks.

We believe it can be shown, upon principle as well as by actual demonstration, that a well chosen excipient is positively a necessary adjunct in pill masses—a disintegrant of positive value. A "ten ton" pressure upon the plunger may result in a beautiful symmetry of shape and exactness of size, but it results as well in that most serious of all objections to pills, insolubility.

It is urged that the lenticular shape increases the facility of swallowing—let us see—let us use a simile. Suppose we simultaneously roll down a declivity, a hill, the throat, for instance, a cannon ball and a grindstone and note the result—the ball (pill) marking a straight and speedy course, with increasing velocity, quickly reaches the base, whilst the grindstone (lenticular), after a few furtive bounces, describes an

awkward curve, and falls prone upon its side, immovable, and out of the contest, *beaten.* The muscular process of deglutition, wonderful as it is, will not always surmount the difficulty presented by the shape of the lenticular. The writer has heard patients complaint of the flat pill adhering to the upper base of the tongue, but no such objection has been urged against the globular pill—it will vanish from sight like peas before a hungry gobbler.

The compressed pills are prescribed by comparatively few physicians, and the range of variety ordered is not great. We would advise each dispenser, whose locality demands it, to provide himself with one of the cheaper hand-machines which are offered, and dismissing all fears of that bug-bear called a legal injunction, go to work, prepare his lenticulars as they are required, pressing them into shape *gently*, and handling them afterward *daintily*.

As a consoling compensation for the trouble and expense put upon him, he will find the cost of production so far below the manufacturer's scale of prices as to astonish as well as delight him.

We may here state (confidentially, perhaps) that the writer was informed by the agent of one manufacturer that the compressed pills were intended only for the wealthy classes—this fact might be inferred from an inspection of the list of prices.

The gelatin-coated, mis-called pill, of New York manufacture shows too distinctly through its transparent envelope the finger marks of manipulation—for instance, the white materials show a dirty whiteness, which is, to say the least, inelegant in nice pharmacy; whilst the dark materials are, in both shape and appearence, so unpleasantly suggestive of the excrementive deposits of a certain small animal (the mouse) as to be actually repulsive to the sight. The gelatin-coated, like all its congeners, puts forth some especial claim to merit, but it certainly should never be designated as a pill—it has the appearance of being made in great haste—pinched off, we might say, with a lamentable want of uniformity in size. Let the dispenser *presume* to send out from his pharmacy, upon extemporaneous prescription, such shapeless objects as these for pills, and the prescriber would assuredly affect indignation enough to annihilate him. We would offer some other name for these, but are at a loss to suggest anything which would be sufficiently distinctive.

Our motto, "hold fast to that which is good," is applied with the

full force of its meaning to the old-fashioned, recently-made globular pill; none other should ever have been countenanced in pharmacy. Pharmaceutical ingenuity never presented medicine in any form at once so convenient, so well adapted and efficient as that of the globular pill. In so designating it we wish to be understood as referring to a freshly prepared pill of any officinal or extemporaneous formula, the material carefully and conscientiously selected, and put together with judgment and skill, in other words, a *perfect pill*, with all its required conditions properly fulfilled. We venture the assertion, bold though it may seem, that its popularity will long outlive the various new-fangled notions which the tyranny of fashion and the fondness of novelty have imposed upon us. Ought we not courageously, then, to stand by the integrity of this, and stoutly resist the encroachments upon our right of domain—our exclusive right to compound and put together—thus placing us once again in our position as of old, where we shall be willing to assume the responsibility for, and feel a just pride in, the character of our productions?

When it was thought to be necessary (and we question if it ever was necessary) to make pills on a large scale, for sale at wholesale, the plan of jacketing them with a coating suggested itself for various reasons—and sugar was the happy idea. A pill coating in substances prone to chemical change is not without advantage, but there is a defined limit, and the manufacturers have long since passed that limit. As an expedient to conceal taste, and humor caprice, the sugar-coated pill has been tolerated, but always with a protest from the more conservative element in our profession. In answer to the plea, that an impervious coating is necessary to protect unstable compounds in pill form from atmospheric influences, we reply, in emphatic terms, that we want no such medicines prepared in advance of requirement—good work will be spoiled by poor tools—medical skill at best is none too effective. Ought we not to aid it, then, with the most efficient auxiliaries?

The sugar-coated pill, the most popular of all, stepped into use upon the indolence of the apothecary and the credulity of the physician. A serious objection to the sugar-coating lies in the fact that it conceals too much—it is, as it were, a blank wall between us and the object of our inspection. We purchase these pills on faith as to what they may contain, and, placing them on our shelves, we assume a responsibility for

their good character. The public soon learn to appreciate the relative value of the various forms of medicine, and when our patrons insist upon having a freshly prepared, or an uncoated pill, there is a hopeful sign of a return to wisdom and sound principle.

We have been prompted to write these thoughts from a realization of the fact that there is prevalent the idea that a multiplication of forms of medicine indicates progress. It indicates to our mind that the business and office of the dispenser is fast passing out of his hands—he is no longer to be permitted even to compound. Any manufacturer who can favorably impress the physician (and it is to this most susceptible individual he goes first) with the claims of his products, now becomes the compounder, and the apothecary merely his agent for their dissemination. This state of things is fast reducing the dispenser to the grade of a mere trafficker, and, unless he bestir himself and resist, he may soon stand side by side with the green-grocer.

IMPROVED TROCHE BOARD.

By F. L. Slocum.

Read at the Pharmaceutical Meeting November 18.

As yet there has not been a troche board introduced that was simple, readily adjustable and economical.

Undoubtedly, pharmacists have long felt this want, especially when trying to cut troches of a certain weight, where accuracy was indispensible.

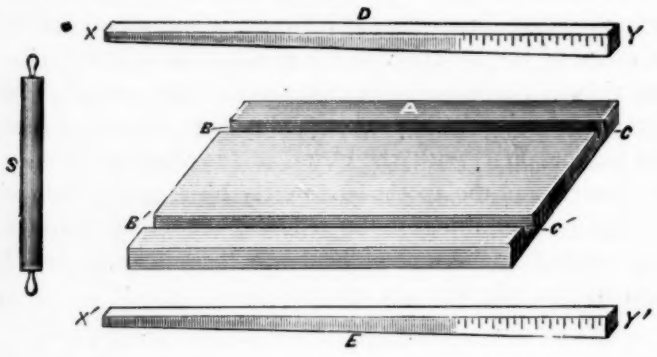
This want, I believe, will be supplied by the troche-board constructed by me, and which has given me such perfect satisfaction that I can recommend it for the favorable consideration of those interested.

In the improved board exhibited I claim simplicity, perfect and ready adjustment and inexpensiveness. It can be instantly adjusted to less than ½ grain (which is not often required), of any desired weight, and does wholly away with the numerous strips and pasting of paper required in ordinary troche-boards to get any required thickness.

For the majority of pharmacists a wooden board, as described, is all that is required, but obviously it may be made of marble or other material.

A is a board, 18x24 inches surface and 2½ inches thick, made of hard wood that is perfectly dry and will not warp; a strip of wood may be screwed across the bottom of either end to prevent further warping.

B C and *B' C'* are two grooves cut lengthwise two inches from their respective sides of the board. The grooves are each $\frac{3}{4}$ inch wide, and at the ends *B* and *B'* are $\frac{1}{2}$ inch deep, and at the ends *C* and *C'* $1\frac{1}{2}$ inch deep, thus giving a gradual incline from *B* to *C* and *B'* to *C'* of 1 inch, which gives an incline of $\frac{1}{24}$ inch to each linear inch.



The bevel pieces *D* and *E* are exactly alike, 34 inches long, $\frac{3}{4}$ inch wide, and at the ends *x* and *x'* $\frac{1}{2}$ inch thick, and at the ends *y* and *y'* $\frac{3}{24}+\frac{1}{2}=1\frac{1}{12}$ inch thick; they are 10 inches longer than the board, and should have inches, halves and quarters cut along the sides of the thick end of each, so that each can be moved along its inclined groove any exact distance and have its surface at any desired distance above the surface of *A*.

When *D* is placed in *B C* with the end *x* at *B* it will exactly fill the groove *B C*, and its surface will coincide with the surface of *A*, and its end *y* will project from *C* 10 inches. Now, for every inch that *D* is driven in the direction of *C B* its surface will be raised above the surface of *A* $\frac{1}{24}$ inch. Hence, with this sized board, we may get a thickness varying from 0 to $\frac{10}{24}$ inch, which is sufficient for general use.

The bevel pieces should always fit *perfect*, and so tight that a slight hit with a hammer will be required to move them.

If greater thickness is required, a strip of wood $\frac{5}{12}$ inch thick, or even more, may be placed in the bottom of each groove.

Boards made of marble, with metallic bevel pieces and roller, are obviously preferable, the sides of the grooves being faced with lead. It is absolutely necessary that the roller should be perfectly cylindrical and its surface straight and smooth, if accuracy is at all desired.

THE PERIMETRIC DIMENSION SYSTEM;

A GENERAL SYSTEM OF MEASUREMENT FOR URETHRAL, UTERINE, RECTAL AND OTHER INSTRUMENTS: AND AN ADAPTABLE METRIC GAUGE.[1]

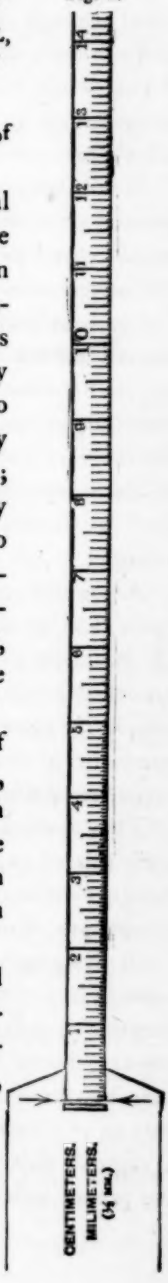
By Charles Hermon Thomas, M. D., Fellow of the College of Physicians, etc.; of Philadelphia, Pa.

Three scales for grading and numbering urethral instruments are now in use in the United States, each scale having distinct characteristics. The differences between them are radical and material, and they are not accurately interconvertible. Of these conflicting standards the universally known French scale is doubtless usually preferred, and indications are not wanting which point to its general adoption. The English scale, formerly almost exclusively used, is purely arbitrary in character; has proved inaccurate in practice; is inconveniently limited in its range of sizes, and is rapidly falling into disuse; while the American scale, somewhat recently introduced — though undoubtedly an improvement on the English—is at least lacking in simplicity, and its claim to supplant the French has yet to be justified.

According to the French scale, each size in a set of catheters or bougies is derived from, and identical with, the number of *millimeters in circumference* which such instrument actually measures—an arrangement at once rational and simple. Thus, while No. 1 is 1 mm. in circumference, No. 2 is 2 mm., No. 3, 3mm., and so on uniformly throughout.

The American scale, though like the French founded on the metric system, has for its gradations half millimeters in diameter, instead of whole millimeters in cicumference. Its numbers, however, are consecutive in units, and therefore correspond neither with the figures which represent diameters nor circumferences. Practically it differs from the latter in that it does away with one in

Fig. 1.



[1] Exhibited to the Philadelphia County Medical Society, June 25th, 1879.

every three of the French sizes—a somewhat questionable improvement, though the only merit claimed for it; and in doing this a new and arbitrary series of numbers is introduced—a serious disadvantage. Thus, while No. 1 is 1 mm. in diameter, No. 2 is 1·5 mm., No. 3 is 2 mm., and so on with a widening disparity till No. 20 is reached, which measures 10·5 mm. by the same method.

It will readily be conceded that the demand among those engaged in general scientific work for unity of standard in measures of length, capacity and weight, which has resulted in the wide-spread adoption of the metric system, has a practical basis. Nor will it be questioned that the various branches of the science of medicine have need of the improved methods and means of observation and experiment which have become common to allied sciences. In the sub-departments of urethral, gynæcic and rectal surgery especially, there is urgent need for the establishment of a common standard of measurement and record of the dimensions of the instruments employed; and—no less important—by means of these of the calibre of the passages to which they relate.

A general system suited to this wide range of applications, is practicable, and an undoubted necessity—a system combining the requisites of simplicity, definiteness and convenience of use, together with universal scientific intelligibility. The attainment of this end requires simply *the abandonment of all conventional numbers, whether arbitrary or systematic, as indicative of size, and the adoption of actual circumferential or perimetric dimensions, expressed in terms of the metric unit.*

This system is applicable to all specula and dilators, together with their related explorers and fixed cutting instruments, for whatever part designed—the male or female urethra, the rectum, vagina, cervix uteri, œsophagus, Eustachian tube, or the lachrymal duct.

In designating sizes and recording data by the Perimetric Dimension System, millimeters will naturally be used for the smaller instruments and passages, while for the larger, as rectal and vaginal, centimeters should be employed. The changed form of expression will then be, for example, 20 mm. instead of No. 20, French catheter—a gain in explicitness with no loss of brevity; and in place of Sim's No. 1 vaginal dilator, as at present, its equivalent, 10 cm.; or, 8 cm. as the proper substitute for No. 10 of English rectal bougies; or, again,

30 mm. as closely approximating the dimensions of No. 18 of the American scale.

A comprehensive plan of unification is thus afforded, based upon the best known standard; for, whatever may be the faults of the metric system for general mechanical purposes, it is perfect for surgical uses. Neither can objection be raised to it in this case, on the ground of infraction of established routine, as is done in regard to its introduction into medicine and pharmacy, for in surgery there is no generally accepted standard to be displaced. In fact, except in the case of the urethral instruments before mentioned, there has been no attempt to indicate actual dimensions of any kind in the numbering of surgical instruments; while the sizes of nearly all appliances in use are purely arbitrary, if not in many instances simply the result of accident.

Metric terms are now almost universally adopted as part of the language of general science, and surgery can have nothing to lose but much to gain by the acceptance of a standard so truly International.

While the proposed system of measurement is fixed and definite, it yet allows entire freedom for individual choice on the part of the surgeon in the gradation of the sizes of instruments, both as regards their number and their relative dimensions. It includes and utilizes all scales, by giving them a common nomenclature; being especially in accord with the French urethral scale, however, for in this—though it is limited to certain fixed gradations—nominal number and actual size expressed in metric terms correspond.[1]

The importance of measurement by circumference or, preferably, by *perimeter*, instead of by diameter, is not to be overlooked, inasmuch as many instruments are irregular in outline, and therefore not susceptible of measurement by the latter method.

The Adaptable Metric Guage supplies a ready means for rendering the foregoing plan practicable, and thus securing the highest degree of definitness and accuracy, for purposes of record, comparison and operative procedure. In illustration: during several years I have made somewhat frequent use of Otis's dilating urethrotome in obstinate and irritable stricture, and though using at different times the best procur-

[1] The American scale, with its distinctive gradations, may be virtually reproduced by the same method by making successive advances in size of 1·5 mm. in circumference—as 1, 2·5, 4, 5·5, 7 mm., etc

able makes of that admirable instrument, have found that a ready means of verifying or correcting its index was needed. One now in use, and an otherwise faultless piece of mechanism, being accurately measured over the knife in place, shows an excess of size over that registered of 4 mm. An error like this not recognized and provided against, in an operation of such delicacy and gravity as that of Otis's for internal urethrotomy—in which the only hope of success depends upon strict accuracy and correspondence of measurements—may at any moment be the source of serious mischief, or even of fatal results. Again, Ellinger's dilator for the cervix uteri has a seemingly perfect parallel motion, but when measured by the gauge shows a conicity of 12 mm., which is increased to 2 cm. or more by pressure near the points when its sides are separated. Its failure to be retained when in use is thus accounted for. Or, an instance mentioned by a friend, a steel sound which had been looked upon as standard 32 French, proved upon measurement to be fully 39·5 mm.—an enormous error.

The gauge is a simple appliance, mechanically similar to the glovers' measure, and consists of a narrow flexible measuring tape, graduated in centimeters and millimeters (Fig. 1), to which is attached a hand-piece having a mortise for the passage of the tape. A sliding loop is thus formed (Fig. 2), within which instruments to be measured are placed.

Fig. 2.

The two ends of the gauge being drawn upon in opposite directions so as snugly to embrace the enclosed object, the dimensions of its circumference if cylindrical, or its perimeter if of irregular outline, are indicated by arrows placed opposite the point of beginning of the scale.

The material found best adapted for its construction is an extra heavy bank note or bond paper, the handle being stiffened with cardboard. This paper is very flexible, strong and durable, is readily printed in fine but legible divisions, bears all ordinary use without stretching or breaking, and is not perceptibly affected by atmospheric changes. In practice, it answers well for all purposes, including measurements involving delicate cutting edges.

Accurate to a fraction of a millimeter, the gauge becomes an instrument of precision, adapted to ascertaining the perimeters of a great variety of forms, and to expressing their values in uniform terms. It has the special advantage of utilizing old appliances, for by it their equivalence under the general system may be at once determined.

Contrasted with the ordinary gauge-plate, the Adaptable Gauge will be seen to be possessed of important advantages. The former is capable of measuring cylindrical forms only, and, as made, is often inaccurate and always very limited in its range of sizes. The Adaptable Metric Gauge, on the contrary, beside being accurate, is practically unlimited in capacity, measures cylinders perfectly, and is equally well adapted to the measurement of instruments of irregular outlines—as urethrotomes, metrotomes, separable dilators, divulsers, folding specula and the like. While the gauge-plate is difficult of verification, the correctness of the Adaptable Gauge may be instantly tested by comparison with any standard metric rule.

109 South Eighth Street,
Philadelphia, June 10th, 1879.

Charles H. Thomas, M.D.

Dear Doctor—We are now using your Adaptable Metric Gauge as a correct guide in the manufacture of urethral and dilating instruments. It has been particularly serviceable in enabling us to bring the measurement of bougies, catheters and all urethral-cutting instruments to the point of absolute accuracy.

Thanking you for bringing the gauge to our notice, we would state that we have made arrangements to produce them, and should be most happy to furnish members of the profession with your very useful appliance gratuitously.

Your views in regard to a *Universal Scale* are so evidently correct that we are prepared to conform to them.

We are, very respectfully, yours,
J. H. Gemrig & Sons.

They will also be furnished, without cost, upon application to Messrs. George Tiemann & Co., New York City; D. W. Kolbe & Son, Philadelphia, Pa.; Sharp & Smith, Chicago, Ills.; or the American Metric Bureau, Boston, Mass.

(From "Philadelphia Medical Times." Revised, with additions, by the author.)

ON A NEW TINCTURE PRESS.

By Joseph P. Remington.

The Enterprise Manufacturing Company of Philadelphia are about perfecting a press for pharmaceutical purposes which bids fair to supplant most of the appliances which have been introduced from time to time. The particular advantages which are possessed by this press are that the use of press cloths is entirely dispensed with, with all of the vexations attending their use; from its novel construction, the residue can be delivered uniformly dry, and thus the objection to most of the presses which leave the residual cake comparatively dry on the surface, but with varying amounts of moisture in the interior, is avoided. Its great power, cheapness, compact form and adaptability to many wants of the druggist, are some of its principal recommendations.

It consists of a tapering cylinder, which has a hopper or bowl with an outlet and perforated plate, and a tapering screw which fits snugly, but so as to turn freely in the above cylinder, well illustrated by the accompanying cuts.

Tincture Press.

The metal composing the principal parts of the press is cast iron, well galvanized; the tapering casing is secured at its largest end to a stand which has two legs, furnished with clamps for fastening it firmly to a table. On the under side of the casing is a hollow rib, within which is a chamber or channel for holding in position the perforated

brass plates, of which there are several, with perforations of different degrees of fineness, to suit the various purposes to which the press is applied. These perforated brass plates are concave transversely, so as to form a continuation of the surface of the interior of the casing. The small end of the casing is provided with means whereby the outlet may be contracted or enlarged, and this consists of a brass screw, which on being turned in one direction diminishes the area of the outlet, or if turned in the opposite direction the area is increased. This screw is adjusted in a detachable ring, which is screwed on the small end of the casing. The thread of the large tapering screw has a differential pitch, the pitch gradually decreasing from the large to the small end of the screw, thereby forming within the casing a spiral channel gradually decreasing in size.

The substance from which the liquid portion is to be separated is placed in the hopper, and the screw turned by using the handle in such a direction that the thread will have a tendency to withdraw the substance from the hopper and force it through the tapering spiral channel

SPIRAL CHANNEL AND CASING OF TINCTURE PRESS.

formed by the screw within the casing, in doing which the pressure on the substance will gradually increase as they approach the small end of the casing, the liquid matter thus forced from the materials meanwhile passing through the perforated plate into the pan or receptacle below, whilst the residual matter passes off through the outlet.

The writer has used this press with great satisfaction in pressing juices from fruits, recovering alcohol and weak tinctures from percolation residues, and it is particularly useful with such drugs as arnica flowers, hops, etc., and those bulky, absorbent drugs that succeed so well in wasting alcohol. In expressing opium mass, in preparing aqueous extract of opium, it is very useful; the only class of drugs which cannot as yet be successfully treated are those in very fine powder or such as are of a very sticky or tenacious character.

GLEANINGS FROM THE GERMAN JOURNALS.

By Louis von Cotzhausen, Ph.G.

Balsam of Sulphur.—In contradiction to Hæfner's statement, that balsam of sulphur was first introduced in 1630, at Schmalkalden, R. Mathias claims that the priority belongs to Basilius Valentinus, of Erfurt, who, in the year 1500, compounded a solution of sulphur in fatty oils and called it balsam of sulphur. Mathias Schmidt, at Schmalkalden, was, however, the first to introduce it on a large scale for medicinal purposes, and who secured by law the sole privilege of manufacturing it to his descendants, who claimed marvelous and ridiculous virtues for it and still make a secret of its composition. The principal constituents seem to be sulphur, linseed-oil, turpentine, amber, olibanum, mastic, myrrh and oil of juniper.—*Pharm. Ztg.*, Oct. 18, 1879, p. 646.

Tapeworm Remedies.—Dr. Kraus has observed very unfavorable results in several cases with *Oleoresina filicis*, which demonstrate that it is far from being as innocent in large doses as generally believed. He, therefore, opposes the practice of dispensing it without a physician's prescription. Mayer reports never failing success with a decoction of the unpeeled rhizome in cases where the officinal oleoresin failed. *Koosso* is considered by Kraus fully as efficacious, and is given by him in the dose of 25 grams in lemonade on an empty stomach, with black coffee, if desired, and followed one hour later by castor oil; he always diets the patients on the day before the remedy is administered. The same author states that *fresh Pomegranate-root Bark*, given in infusion, never failed in removing the entire worm. If the patients are very young it appears better to prevent the rapid growth of the tænia by administering calomel as a laxative every three months.

Blackberries were recently recommended as a tænifuge by Dr. Lederer, who reports a very successful cure of an old lady who had previously taken almost all other remedies without success.—*Pharm. Ztg.*, Oct. 11, 1879, p. 632, and Oct. 15, 1879, p. 638.

Clarifying Honey.—An unusually elegant and pure preparation is obtained, according to F. E. Bourquin, by heating quickly and strongly 2 liters or less of a mixture of 10 kilos of crude honey, 0·15 to 0·25 grams tannic acid and about 10 to 15 grams Irish moss. The honey usually becomes perfectly clear and pure at the expiration of 10 min-

utes, while all impurities, together with the Irish moss, rise to the surface, and are skimmed off or removed by straining. The product does not contain the slightest trace of tannin, which is removed as an insoluble compound with the other impurities.—*Ibid.*, Oct. 4, 1879, p. 617.

Uses of Starch-sugar in Practical Chemistry. — Starch-sugar, dissolved in soda lye, is used by Bœttger for reducing the soluble and insoluble silver-salts, and is regarded by him as the most simple, clean and efficacious agent for the purpose. Freshly precipitated and washed silver chloride, in a porcelain dish, is covered with soda-lye, an equal quantity of starch-sugar is added, and the mixture is heated to the boiling point, when the reduction will be effected in a few minutes.

An extraordinarily efficacious *platinum black* is obtained by adding to a solution of platinum chloride in water caustic soda in excess and a corresponding quantity of starch-sugar, and boiling the whole for 5 or 10 minutes, when all platinum separates as a velvety-black powder.—*Ztschr. d. Allg. Oest. Ap. Ver.*, Oct. 10, 1879, p. 430, from *Jahresb. Phys. Ver., Frankfurt.*

The glucoses of different origin, as sugar from honey, from starch, sugar formed by the decomposition of amygdalin and salicin, etc., are all considered identical by Hesse, not only in regard to their optical relation but also in regard to their melting point, which, in the hydrate, $C_6H_{12}O_6+H_2O$, lies between 80 and 84°C. The author noticed a separation of anhydrous glucose in hard prisms, while a syrupy glucose solution was crystallizing, and supposes Anthon's half-hydrate to have been a mixture of anhydrid and hydrate.

Phlorose, the sugar formed by the splitting of phlorrhizin, has the appearance, reducing power and contains the same percentage of water as glucose, but differs in melting at 74°C., and polarizing one-sixth weaker.—*Ibid.*, Oct. 10, 1879, p. 432, and *Ann. d. Chem.*

Preparation of Butyric Acid.—Dr. Enders recommends the following process: 10 kilos of starch are mixed with 5 kilos of chalk in a copper kettle, water is added and the mixture boiled to a thick paste. This is transferred to stoneware or wooden vessels, water and skimmed milk are added, together with a corresponding quantity of putrid, old cheese, and the mixture is allowed to ferment in a warm place; since the chalk is uniformly suspended in the paste frequent stirring is

unnecessary. The mass first forms calcium lactate and then gradually turns into a thin liquid, when soda solution is added, the mixture heated to the boiling point and the liquid separated from the precipitated calcium carbonate, and evaporated nearly to dryness. The dark-brown sodium butyrate thus obtained is decomposed in a large flask by adding gradually 9 kilos of sulphuric acid, diluted with an equal weight of water. The greater portion of the crude butyric acid collects as a black oily liquid in the neck of the bottle, and is removed and rectified by distilling from glass retorts.—*Pharm. Ztg.*, Oct. 15, 1879, p. 638.

The Citrates of Quinia.—K. F. Mandelin enumerates the following three different citrates of quinia:

	Composition.	Solubility in 100 parts of cold water.	boiling water.
Wittstein's basic citrate,	$(C_{20}H_{24}N_2O_2)_2 . C_6H_8O_7$,	0·1093 parts.	2·25 parts
Neutral citrate,	$(C_{20}H_{24}N_2O_2)_3 (C_6H_8O_7)_2$,	0·1133 "	2·39 "
Acid citrate,	$C_{20}H_{24}N_2O_2 . C_6H_8O_7$,	0·1566 "	2·60 "

Their crystalline form is very similar, all apparently crystallizing in the rhombic system. The three salts lose their water of crystallization almost entirely over sulphuric acid without alteration of the crystalline form or transparency, and this accounts for the different amounts of water of crystallization found in the same citrate by different authors. Mandelin prefers Wittstein's basic citrate to the others, because it contains the largest precentage of quinia; to obtain it of uniform composition for medicinal purposes it should be dried at, between 90 and 100°C.—*Archiv d. Pharm.*, Aug., 1879, p. 129.

Curare and Curarin.—It has often puzzled practitioners why curare is more efficacious than Preyer's curarinum sulphuricum crystallisatum, its supposed active principle, which is still supplied at a high figure to German apothecaries. Sachs' recent researches settle this question by proving that, instead of being an active principle, in consists of calcium phosphate with a trace of calcium carbonate, contaminated with a brown adhering substance consisting of curare. Sachs states also, that curare contains about 75 per cent. of constituents soluble in cold water, and that curarin exists in curare as sulphate.—*Pharm. Ztg.*, Oct. 15, 1879, p. 639, and *Liebig's Ann.*

Kinoin, $C_{28}H_{12}O_{12}$, was obtained by C. Etti in handsome colorless prisms, scarcely soluble in cold water, readily soluble in alcohol, and less so in ether, by boiling 3 parts powdered kino in a mixture of 1 part

hydrochloric acid and 5 parts water until a red, soft mass separated, allowing the mixture to cool, decanting the supernatant liquid, boiling the red mass with water, adding this decoction to the decanted liquid, shaking the mixture several times with ether, distilling off the latter, setting aside the residue to crystallize and recrystallizing the obtained crystals from water. The product obtained by heating the colorless kinoin to 130°C. is red, amorphous, less soluble in water, more soluble in alcohol than kinoin, has the formula $C_{56}H_{22}O_{22}$, and is identical with the red substance, which is the principal constituent of kino. —*Pharm. Centralbl.*, Oct. 9, 1879, p. 380, from *Ber. der Chem. Ges.*

The presence of alcohol in chloroform and chloral hydrate is ascertained, according to Boettger, by adding very carefully and gradually to the chloroform or to an aqueous solution of the chloral hydrate a solution of molybdic acid in pure concentrated sulphuric acid, when the presence of the smallest trace of alcohol will cause an intense blue coloration.—*Ztschr. d. Allg. Oest. Ap. Ver.*, Oct. 10, 1879, p. 431, from *Jahresb. Phys. Ver., Frankfurt.*

Detection of Phosphorus.—Mix the suspected mass with a little subacetate of lead in order to remove sulphuretted hydrogen, if present; shake a portion of the mixture well in a glass vessel with a little ethylic ether, close the vessel with a cork, to the lower end of which a strip of parchment paper, moistened with solution of silver nitrate, has been previously attached, and set aside in a shady place, when the phosphorus will in half an hour impart to the moistened portion of the paper a black color, having a metallic lustre. The reaction will always take place, even when the quantity of phosphorus is so minute that the ordinary methods yield no or at least doubtful reactions. Petroleum ether may be used instead of the ethylic ether in this test, but yields slower reactions.—*Pharm. Post*, Oct. 16, 1879, p. 310, and *Pharm. Centralh.*

Ammonia in Caustic Alkalies.—The presence of traces of ammonia in preparations of caustic alkali is attributed, by Hager, to the well-known fact that these preparations absorb carbonic acid of the atmosphere, and that this is almost always combined with ammonia, which is thus also absorbed.—*Pharm. Centralh.*, Oct. 9, 1879, p. 379.

Aqua bisdestillata, a strictly pure so called double-distilled water for analytical purposes, which is said to keep unaltered for years in

glass-stoppered bottles, and does not contain the slightest trace of ammonia, is made by Hager by mixing pure spring-water with a little potassium permanganate, filtering at the expiration of 24 hours, macerating for one day with 1 per cent. purified animal charcoal, again filtering, distilling over 1 per cent. potassa alum from a glass retort, rejecting the first $\frac{1}{6}$ of the distillate, and collecting the next $\frac{4}{6}$ as pure distilled water in a clean, dry glass bottle.—*Ibid.*, Oct. 16, 1879, p. 385.

Beer Analysis.—Dr. Enders mixes 1 liter of beer in an evoporating dish with 10 grams of fine granular animal charcoal, evaporates the mixture to dryness on a water-bath, stirring occasionally, treats the residue after cooling with cold water until the filtrate passes colorless, and then extracts the charcoal with hot alcohol, which dissolves all bitter principles and alkaloids; these may afterwards be readily determined by their respective tests. The charcoal contains, besides the bitter principles, only a little coloring matter.—*Pharm. Ztg.*, Oct. 1, 1879, p. 609.

CHEMICAL NOTES.

By Prof. Samuel P. Sadtler.

Inorganic Chemistry.—*On the Preparation of Alumina Free from Iron.*—Condy and Rosenthal (German patent) remove the iron from bauxite and other alumina minerals by converting it into sulphide. For this purpose the finely pulverized mineral is heated in an iron kettle, lined with lead, with a solution of sodium sulphide, the mixture being constantly stirred. For 2 parts of iron, 3 parts of sodium sulphide are to be used. When the action is complete the liquid is drained off, the residue treated with dilute hydrochloric acid, and the ferrous chloride washed out with water. Iron, lime and magnesia are almost completely removed by this treatment. Barium or calcium sulphides can be used for the same purpose, or hydrogen and hydrogen sulphide can be led over the heated bauxite, in order to make the iron soluble in dilute hydrochloric acid.—*Dingler's Polytech. Jour.*, 233, p. 493.

Artificially Crystallized Manganese Dioxide.—Gorgen has prepared MnO_2 in artificial crystals by heating manganic nitrate gradually and for a considerable length of time to 158° to 162°C. The product had all the properties, the specific gravity, hardness, color and crystalline form

of polianite. Gorgen believes that polianite and pyrolusite have been formed in this way, and explains their purity by supposing that the other products had separated out in the fused mass before the decomposition of the nitrate.—*Ber. der Chem. Gesell.*, xii, p. 1706, from *Comptes Rendus.*

Development of Oxygen by the Action of Nascent Hydrogen.—Hoppe-Seyler has made a number of experiments to show that the action of nascent hydrogen is often accompanied by energetic oxidation. Thus palladium foil charged with hydrogen as in Graham's well-known hydrogenium experiments, in the presence of oxygen or atmospheric air, turns indigo solution yellow, turns a neutral mixture of potassium iodide and starch blue, and changes ammonia into ammonium nitrite. An interesting appearance is that seen when a strip of hydrogen-laden palladium foil, of sufficient length, is dipped into a test-tube of very dilute indigo solution. After some time the solution at the bottom of the tube is decolorized in consequence of reduction, the uppermost layers yellowish colored in consequence of oxidation, while a layer of blue solution separates them. The rapidity of the reaction depends upon the relative amount of hydrogen carried by the palladium. Benzol, to which water and the palladium foil laden with hydrogen has been added, shaken up in contact with air and then allowed to stand, is gradually oxidized. Phenol was found among the products of the oxidation. Toluol yielded a phenol-like body, and a small amount of an acid readily recognized as benzoic acid. The results with metallic sodium were still more remarkable. Thin slices of sodium, after being wet with petroleum benzin, were allowed to lie exposed to the air, and shaken about from time to time until the benzin had evaporated. They were then rubbed up in a mortar with fresh portions of the benzin and again allowed to stand exposed to the air. When the sodium was completely oxidized the white powder was carefully and gradually put in water, the alkaline solution concentrated down to one-half its bulk, and then acidified with sulphuric acid and distilled. With the first drops of water distilled over drops of oil. The distillate was saturated with baryta and the resulting product examined. Capric acid was recognized, and one portion analyzed proved to be barium butyrate. Hoppe-Seyler has also detected distinct amounts of the higher members of the fatty acid series in the crusts with which sodium becomes

covered when lying under petroleum.—*Berichte der Chem. Gesell.*, xii, p. 1551.

Effects of Alternate Oxidation and Reduction.—E. Drechsel has gotten some very interesting results by rapidly alternating the poles of a galvanic battery by means of a commutator or pole-changer during the electrolysis of solutions. Thus a solution of ammonium carbonate was decomposed using platinum electrodes. The evolution of gas was rapid, but no elevation of temperature was noticed. After about eight hours the action of the current was stopped and the solution concentrated on the water-bath, when a salt crystallized out in beautiful white needles. This substance contains 64·69 per cent. platinum, and is the salt of a platinum base. Its solution gives with concentrated hydrochloric acid a bright green precipitate, and with nitric acid a sky-blue crystalline precipitate. The same solution submitted to electrolysis in the usual way became strongly heated, but no platinum was dissolved. If the poles be changed more slowly than in the first experiment, the temperature of the solution rises. If this be overcome by artificial cooling, there is obtained at the end of the experiment a salt of a platinum base which contains less platinum (38·6 per cent.), and with concentrated hydrochloric acid gives not a bright green crystalline powder, but nearly colorless microscopic needles. Prof. Kolbe proposes to follow up this study on the decomposition of salts, as Prof. Drechsel means to apply the method to different experiments.—*Jour. für pr. Ch.*, 20, p. 378.

Organic Chemistry.—*On the Direct Preparation of Propylene Glycol from Glycerin.*—A. Belchoubek has discovered a simple method of converting glycerin into the corresponding diatomic alcohol. If glycerin be heated with sodium in the form of sodium amalgam, a transparent gummy mass is produced, from which the separated mercury can be poured. This mass is monosodium glycerate, according to Letts. If this be submitted to dry distillation there is obtained, among other products, a liquid which when purified boils at 186° to 188°C., and shows all the properties of the propylene glycol. The reaction seems to be one capable of general application for reducing an alcohol of high atomic value to one of lower atomicity.—*Ber. der Chem. Gesell.*, xii, p. 1872.

On the Phtalein Hematoxylin.—The publication of Meyer's results on the dry distillation of hematoxylin (see this journal, p. 491, Oct., 1879)

has led Letts to announce the results of his study of the same compound. Accepting Baeyer's generalization that bodies of the phenol character, when treated with phtalic acid anhydride, would yield phtaleins, he endeavored to form the phtalein of hematoxylin. In this he succeeeed, and obtained the desired compound in the form of brown flocks, insoluble in water, soluble in alcohol. It yields with potassium hydrate and ammonia purplish-red colors, of different shades from those produced with these reagents and hematoxylin solution. After oxidation with nitric acid, evaporation of the solution to dryness and heating the residue with resorcin, the characteristic fluorescein was obtained.—*Ibid.*, p. 1651.

On the behavior of Ammoniacum Resin when Distilled with Zn Dust.—Ciamician has distilled the purified ammoniacum resin with zinc dust, and has obtained as the result a mixture of hydrocarbons and a phenol-like body, which, after study, proved to be an ethyl-phenol. The methyl ether of this phenol was also found to accompany it in the original mixture. The hydrocarbons proved to be C_8H_{10} xylol and C_9H_{12} an ethyl-toluol. There appeared to be present also a still higher homologue of the benzol series in the highest boiling fraction of the distillate. The author contrasts these distillation products with those obtained by submitting the terpene resins to similar treatment. Thus, in distilling abietic acid or elemi resin with zinc dust, hydrocarbons of the naphtalin series are obtained. The author proposes to submit other resins to the same treatment.—*Ibid.*, p. 1658.

On the action of Sulphuric Acid upon Hydrocarbons of the formula $C_{10}H_{16}$ (Terpenes).—H. E. Armstrong and W. A. Tilden have studied the so-called terebene of Deville, gotten by the action of sulphuric acid upon oil of turpentine, and find it to be a mixture of camphene, cymol and terpilene, three distinct hydrocarbons. There is also formed in the last distillation product some camphol (borneol) $C_{10}H_{17}OH$. The same results were gotten with both American turpentine oil and the French oil of turpentine.—*Ibid*, p. 1752.

On the Action of Iodine upon Oil of Turpentine.—Armstrong had shown over a year ago that the action of iodine upon camphor yielded, besides cymol and higher homologues of the benzol series, a paraffin like hydrocarbon, $C_{10}H_{20}$. He has since studied the action of iodine upon oil of turpentine, and gets the same product in part. He finds cymol, terpilene and the hydrocarbon, $C_{10}H_{20}$, before spoken of. This latter hydrocarbon,

Armstrong says, appears to be formed very readily from terpenes and allied bodies. He has found it in the so-called "rosin oil" distilled from colophony resin, and in the products of the action of sulphuric acid upon terpenes, as studied by Tilden and himself.—*Ibid.*, pp. 1756–1761.

Analytical Chemistry.—*On the direct Separation of Manganese from Iron.*—In analyses of steel, cast iron and other products, the iron had always to be separated out first, and the after determination of the manganese was frequently made a difficult matter thereby. Beilstein and Jawein have proposed two methods for the ready determination of manganese in such cases. The first is based upon the fact that iodine precipitates from a solution of double cyanide of manganese and potassium all the manganese as brown oxide, while iodine gives no precipitate with the corresponding double cyanide of iron and potassium solution. The second method is based upon the fact discovered by the authors that, on boiling with concentrated nitric acid and potassium chlorate, all the manganese of manganese salts is precipitated as manganese dioxide. The analyses quoted show both to be excellent methods, the latter, especially, commends itself by its simplicity.—*Ibid.*, p. 1528.

THE MOST IMPORTANT VEGETABLE WAXES.

By A. Meyer.

(Translated and condensed from "Archiv d. Pharm.," Aug., 1879, p. 97 to 129, by Louis von Cotzhausen, Ph.G.)

Carnauba Wax (*Ceara or Brazil Wax*), obtained from the leaves of Copernicia cerifera, *Martius*, comes from Brazil, is hard and brittle, and melts at 83·5°C. to 84°C.

Pela Wax (*Chinese Wax*) is separated in China by the influence of Coccus pela, *Westwood*, on the young branches of Fraxinus chinensis, *Roxburgh*, melts at 82·5°C., and was never introduced into Europe.

Koga Wax, probably the wax obtained in Japan from Cinnamomum pedunculatum, is softer than Japan wax, and was never introduced into Europe.

Ibota Wax is produced on Ligustrum ibota by an insect, is white, very solid and was also never introduced into Europe.

Chinese Vegetable Tallow is obtained from the seeds of Stillingia sebi-

fera, *Martius*, indigenous to China; it is used in the manufacture of candles, and is a comparatively soft, crumbling substance, melting at 37°C.

Palm Wax is collected from the trunks of Ceroxylon andicola, *Humb.*, indigenous to Tropical America; it does not melt in its crude state unless heated to over 100°C.

Myrtle Wax is separated from the fruits of Myrica cerifera (wax myrtle), indigenous to the United States, and melts at 47·5°C. (*Lèroy*), or at 49°C. (*Chevreul*).

Japan Wax is obtained from the dried fruits of Rhus succedanea, R. vernicifera and R. silvestris, is imported into Europe from China and Japan, principally from the latter country. According to the "Preuss. Handelsarchiv" China exported 120 kilos in 1868, 168,636 kilos in 1874 and 5,677 kilos in 1877, while Japan exported 858,683 kilos in 1868 from Nagasaki and Osaka, 1,520,571 kilos from Hiogo in 1873, and 276,993 kilos from Nagasaki in 1877. In the latter year the value of Japan wax exported from Japan was 989,862 German marks (about $237,600).

Japan wax is nearly white or of a slightly yellowish-green tint, has a sandy, short fracture, an unpleasant odor, resembling tallow, has frequently a very fine, white crystalline coating, melts at 52 to 53°C., when old is soluble in boiling alcohol and warm ether, both of which separate almost all on cooling, and is used for polishing wood, in the preparation of wax matches and candles, and in a castor oil pomade, a mixture of Japan wax and castor oil, which is rendered entirely transparent by repeated melting.

FRAXINUS CULTIVATION FOR MANNA.

By J. Janssen.

The cultivation of fraxinus trees in Italy pays well without much labor and expense. The best trees for cultivation are Fraxinus ornus, *Lin.*, and F. excelsior, *Lin.*; the former species is now also cultivated in Calabria, Sicily, although both species grow wild there.

The trees are ready for yielding manna when 8 to 10 years old. The method of collecting is as follows: Horizontal incisions are made into the bark with a sharp garden-knife, commencing in the first year on that side of the tree towards which it leans (it very rarely grows

straight). The first incision is made near the ground in the beginning of July, and is followed by daily incisions each 1 centimeter higher than the preceding one, until the branches are reached, when incisions are cut into the bark on the opposite side of the tree, again commencing near the ground. The cutting of incisions is continued until the end of September. The exuding juice is at first brown and bitter, but becomes concrete, white and sweetish in the course of a few hours, forming stalactites or tubes; these are kept separate, and are the so-called "flake manna," or "manna canellata" of commerce. When very thin the juice runs down the bark or drops to the ground, and is collected on the leaves of Ficus indica; this manna is then far inferior to the stalactites, and is known in commerce as "sorts." All manna is collected once a week, and dried in the sun before shipping. The collection from the same trees continues for nine years, when the trees are exhauted and are cut down, but when shoots appear one is allowed to remain, which is usually capable of yielding manna in four or five years. The average yield of one hectar of land is about 6 kilos of flake manna and 94 kilos of manna in small flakes and sorts, both having a value of about 837·60 francs, to which may be added about 12·75 francs as the value of wood cut during the year.—*Pharm. Ztg.*, Oct. 15, 1879. *Agric. Merid.* L. v. C.

ON THE GENUS MYRIOGYNE.

By Baron von Mueller.

Of the genus Myriogyne (of Lessing) three species occur within the boundaries of the colony of Victoria, all strongly sternutatorian. The most common one here is Myriogyne Cunninghami of De Candolle, which now usually passes under the name Centipeda Cunninghami, the genus Myrigyne having been defined already in 1780 by Loureiro under the curious and odd name Centipeda, because these herbs attach their creeping stems with hundredfold multiplied roots to the ground. Centipeda Cunninghami occupies the more open ground, particularly on moist pasture, and is widely dispersed through extratropic Australia, but not to be found outside of the Australian continent, not even in Tasmania, whereas Centipeda Arbicularis of Loureiro (Myriogyne Minuta of Lessing) occupies more of the forest

regions, not only of many parts of Australia, but also Southern Asia and Polynesia, and I have seen also specimens from Valdivia. The third species is Centipeda thespidioides (F.V. M.), which belongs to the desert regions of the interior, restricted, however, to localities where some humidity exists. In their sternutatorian properties these herbs remind me of Arnica montana, and probably they may share also in the medicinal effects of the last-mentioned plant by acting as stimulants on the nervous and muscular system, although the latter belongs to the tribe of Senecionidæ, not of Anthemidæ, among Compositæ. The medicinal properties of the centipedas rest on a volatile oil which has never yet been examined, and on a peculiar acid (found out by Mr. Remmel and myself), myriogynic acid, allied to santonic from Artemisia cina (*Berg*), and, perhaps, allied species. Although centipeda is not closely allied to the genus Artemisia in the tribe Anthemidæ, myriogynic acid is obtainable by treating the aqueous extract of the herb with alcohol, evaporation of the tincture, redissolving in water, which is rendered slightly alkaline with ammonia, subsequent acidification with hydrochloric acid, shaking with ether, evaporation of the ethereal solution, ablution of the remaining myriogynic acid with cold water. It constitutes a yellowish or browish brittle mass of acid reaction and bitter taste, sparingly soluble in cold water, easier in boiling water, very easily in alcohol, less easy in ether, readily also in alkaline solutions; concentrated sulphuric acid dissolves it with a red-brown color, in which solution a precipitate is produced by admixture of water; concentrated nitric acid dissolves myriogynic acid with yellow color; hydrochloric acid exercises no effect on it. I exhibited snuff prepared from the myriogynes merely by pounding the herb, in one of the intercolonial exhibitions many years ago.—*Australian Chemist and Druggist*, Aug., 1879.

FUCUS VESICULOSUS.

The subject of obesity and its treatment has of late years received much attention, both from doctors and their patients. The interest excited by the appearance of Mr. Banting's Letter on Corpulence will not be readily forgotten. The medicinal agents most commonly employed in the treatment of this condition are acids, chiefly in the form of lemon juice and vinegar, strong alkalies and iodide of potassium.

Of late, however, a preparation known as "Anti-fat" has been extensively advertised, both in this country and in America, possessing, if we may accept the statements of the proprietors, very remarkable powers in removing that superabundance of fat which is so frequently a source of anxiety and discomfort to those who indulge too freely in the pleasures of the table. Anti-fat is said to be a fluid extract of Fucus vesiculosus, a common sea-weed, known in this country as sea-wrack or bladder-wrack, and in France as Chêne marin or Laitue marine. It is largely employed on the coasts of Scotland and France in the preparation of kelp, whilst in Ireland, curiously enough, it is found to be invaluable for fattening pigs. It contains, as might be expected, large quantities of iodine, chiefly, according to Gaultier de Claubry, in the form of iodide of potassium.[1]

Fucus vesiculosus was at one time officinal in the Dublin Pharmacopœia, and is by no means a new remedy. Pliny describes it under the name of Quercus marina, and says it is useful for pains in the joints and limbs. In the eighteenth century it was largely employed by Gaubius, Aunel, Baster and others in the treatment of scrofula, bronchocele and enlarged glands, and even for scirrhous tumors Its charcoal, known as Æthiops vegetabilis, was used in the same class of cases. The fucus has also been found useful in skin diseases and asthma. On the discovery of iodine, in 1811, by Courtois, the saltpetre manufacturer of Paris, it for a time fell into disrepute. In the year 1862 its use was revived by Prof. Duchesne-Duparc, of Paris, who, whilst using it experimentally in the treatment of psoriasis, found that it possessed the singular property of causing the absorption of fat.

The fucus can be taken either as an infusion, made by steeping half an ounce or a small handful in a pint of boiling water, or in the form of pill or liquid extract. The dose of the infusion is about a cupful, but it is so abominably nasty that few people can be induced to take it. The pills contain each 3 grains of the alcoholic extract; and, to begin with, one is taken in the morning, an hour at least before breakfast, and another in the evening, about three hours after dinner. The dose is increased by a pill a day until the patient is taking ten every morning and evening. It is directed that the ten pills should be taken *dans la même séance*, and that a greater interval should not be allowed to elapse

[1] Fucus vesiculosus is one of those sea-weeds which yield an ash containing the smallest amount of iodides (see "Pharm. Journ.," ix, p. 303).—Ed. Phar. Jour.

between each pill than is necessary for the process of deglutition. The fluid extract may be given in drachm doses, and it is said that the best results are obtained when both the solid and liquid extracts are taken. In favorable cases the sufferer may expect a reduction in weight from two to five pounds in a week. Unfortunately, however, the fucus appears to be somewhat tardy in its action, and the patient should lay in a good stock of the drug before commencing treatment. In successful cases, one of the earliest effects is an excessive diuresis, and the urine is said to become covered with a film of a beautiful nacreous aspect. In one carfully-recorded case the patient did not observe this, but noticed that his water was very high colored, and that its odor was extremely offensive. The next action of the drug is usually on the bowels, and the patient has many calls to relieve himself, without, however, being able to pass anything more than a little mucus. Sometimes the feet and body exhale a peculiar fusty smell, so that the patient is a nuisance both to himself and friends. After this, as a rule, the reduction in weight takes place. Occasionally, however, the opposite effect is produced, and the patient gets stouter than ever; in fact, fucus has been recommended as an "anti-lean."

By some authorities it is stated that the fucus should be gathered at the period of fructification, about the end of June, and that it ought to be rapidly dried in the sun; whilst other and equally eminent authorities insist that it should be gathered only in September, and that it should be allowed to dry slowly in the shade—a high temperature, according to them, destroying its active properties. It is generally agreed, however, that the roots and stalks should be rejected, and that the fucus gathered on the west coast is superior to that of the east. We understand that, as a matter of fact, most of our fucus comes from Billingsgate market, it being extensively employed for packing fish.

It must be confessed that we know little or nothing of the mode of action of this remarkable drug. We are told that it "stimulates the absorbents," but that is throwing very little light on the subject. What we want is a real sound systematic study of its uses and properties, both in the physiological laboratory and at the bedside. When it has been thoroughly and carefully worked out, as so many drugs have been of late years—pilocarpin and gelsemin, for example—we shall be able to form an opinion as to its value, but at present we are quite in the dark. —*Phar. Jour. and Trans.*, Nov., 1879, from *The Lancet*, Oct., 25, 1879.

APPLICATION of CHLOROFORM in the testing of DRUGS.

By L. Siebold.

In the "Year-Book of Pharmacy" for 1877, there occurs an abstract of an article by Dr. C. Himly on the Detection of Mineral Adulterants in Flour by means of Chloroform. Having frequently tried this test, and finding it extremely useful both as a qualitative and as a quantitative process, it appeared to me desirable to ascertain to what extent it might be advantageously employed in the testing of powdered vegetable drugs. As many of the latter are lighter than chloroform, and the usual mineral adulterants sink in that liquid, it was but reasonable to infer that this mode of separation might prove of value to the pharmacist.

I will not trouble the meeting with the details of my experiments, but confine myself to a brief summary of the results. In each experiment a small quantity of the dry powder was well shaken with about half a test-tubeful of chloroform, and the mixture allowed to stand at rest for twelve hours. The following drugs were found to rise so completely to the surface of the chloroform that the observation and estimation of any mineral adulterant became a very simple and easy task: Acacia, tragacanth, starches, myrrh, Barbadoes aloes, jalap, saffron, cinchonas, nux vomica, mustard, white pepper, capsicum and guarana. Known quantities of selenite and of chalk were added to these drugs, and subsequently determined by running the lower stratum of the chloroform with the sediment into a small dish, carefully pouring off the chloroform, drying the sediment at a gentle heat and weighing it. The result in each case was very satisfactory. No such accuracy could be attained by incineration, as in the presence of chalk there was always a loss of carbonic acid, and in that of selenite a loss of water and of oxygen, the sulphate being partly reduced to sulphide. An estimation of these adulterants by the usual analytical processes would, of course, give exact results, but prove much more tedious.

Both for qualitative and for quantitative purposes, the chloroform test therefore answers extremely well with the drugs named. In the case of the following substances no complete rise to the surface of the chloroform took place, but a portion was found to float and another portion to sink, though the absence of mineral adulterants was proved by analysis: Gamboge, scammony, opium, soccotrine aloes, liquorice root, ginger, colocynth, cousso, ipecacuanha, cinnamon and cardamoms.

Of the last two by far the greater portion was found to sink in chloroform. But even in these cases the test is not altogether without value, for a careful inspection of the sediment will show whether or not it is a mixture of various substances, differing in appearance, weight, etc. The mineral adulterant will generally, in such a case, form the lowest stratum of the sediment. A comparison with a genuine sample helps to arrive at a correct conclusion. Moreover, the chemical examination of the sediment gives results which cannot always be obtained by testing the ash. Take the case of cinnamon, for instance, which contains organic calcium salts. These, upon incineration, leave calcium carbonate, and a qualitative analysis of the ash would therefore fail to show whether this calcium carbonate was solely the result of ignition, or whether a part of it pre existed in the cinnamon powder as an adulterant; while the addition of hydrochloric acid to the lowest stratum of the chloroform sediment would settle this point at once.

It is, however, the case of the drugs first named that I wish specially to recommend this mode of testing to pharmacists.—*Pharm. Jour. and Trans.*, Sept. 13, 1879.

VARIETIES.

The Vanilla Plant.—Of all orchids the vanilla is the one most widely known; its fruit is deservedly esteemed and is an important article of commerce. Its valuable properties long ago brought the vanilla into notice. The fruit appears to have been first introduced into Europe in the beginning of the sixteenth century. The living plant was imported into England, toward the end of the eighteenth century, by Miller; but we can not with certainty determine which one of the few species of vanilla now known was then introduced. Linné, however, gave the name *Epidendrum vanilla* to the plant which had come into his hands, and which is supposed to have been identical with that brought by Miller. Several years later Swartz, on attentively studying the flower of the vanilla, observed notable differences between it and the flower of the genus *Epidendrum*; he was thus led to constitute a new genus, and *Epidendrum vanilla* now becomes *Vanilla aromatica*. Later Greville brought from America some cuttings of a vanilla differing from *Vanilla aromatica*, especially in the size of the leaves; to this Andrews gave the name *Vanilla planifolia*. This plant was brought first to England, thence to the Museum at Paris in 1810, and lastly to Belgium; it is the species whose fruit possesses the strongest perfume.

The vanilla throve in greenhouses, but as it was sensitive to cold, and did not fructify, and its flowers possessed no ornamental interest, its culture was very limited. For a long time the only fruits which came to Europe were from Mexico, or the

Gulf of Mexico—the only points where the plant was cultivated on a large scale, and where its fructification appeared to be insured. It remained for later experimenters to add to the interest attaching to this plant, while at the same time, in some degree, augmenting the resources of the colonies.

At this time the impression made by certain recent researches on fecundation in plants was still fresh, and the questions of hybridation and crossing were closely studied.

It has ever since been believed that the fecundation of the vanilla in Mexico and the neighboring countries, where that plant fructifies normally, was brought about by the agency of certain insects which hitherto do not appear ever to have been observed performing this function. The hypothesis is almost equivalent to a certainty, now that we know the habits of the *Orchideæ*, especially as regards reproduction.—*Mr. J. Poisson, in Popular Science Monthly* for September.

The artificial propagation of sponges is said to have received an official recognition on the part of the Austrian government, under whose auspices the industry may possibly succeed. The direct cause of this action of the authorities is reported to have been the successful demonstration by Prof. Oscar Schmidt, of the University of Gratz (a well-known authority on sponges), from the results of practical experiments carried on during several years, that the artificial growing of sponges was quite easy to accomplish, and, if properly conducted, could be made a source of considerable profit.

The procedure consists simply in cutting the live sponges into small pieces, attaching the same to a wooden frame-work, and sinking it to the proper depth in the sea, in locations favorable to their natural growth. In three years, Prof. Schmidt reports, such pieces will have attained a marketable size. He estimates that the total cost of raising 4,000 sponges (including interest on capital expended for three years) will be $45, and the income from their sale $80, leaving a net profit of $35. As the growing sponges, after their first immersion, will require no attention, it will be readily perceived that the quantity thus propagated could be indefinitely increased.

Prof. Schmidt's observations are simply confirmatory of those of the naturalists Brehm and Buccich, who years ago demonstrated the feasibility of artificial sponge breeding, and suggested it as a new and profitable industry, and one which in time would be rendered necessary for the maintenance of the sponge supply of the Mediterranean, in view of the rapid and improvident exhaustion of the sponge fisheries, and of the fact that the fishermen selected the very season for their active operations in which the sponges would increase and multiply by natural means. The suggestion of these savants that the fishing season should be confined to certain months of the year, and that the artificial cultivation of sponges should be introduced and encouraged, met with similar governmental approval; but the paternal designs of the authorities and the recommendations of the savants were misunderstood, and the experimental breeding stations were destroyed by the ignorant fishermen; and until the present no effort to revive the subject has been made. It is to be hoped that the present effort may meet with better success.

This subject, we may finally remark, is not without interest for our own country, as a large stretch of the Floridan and the Gulf Coast is suited for the growth of

sponges, and yielded, in 1878, a product valued at $120,000. It is highly probable that this field could be very materially increased by the introduction and adoption of the plan of artificial breeding here proposed, and we regard the suggestion as worthy of the attention of parties interested in the sponge trade.—*Eng. and Min. Jour.*

MINUTES OF THE PHARMACEUTICAL MEETING.

PHILADELPHIA, November 17, 1879.

In absence of the President, Mr. Alonzo Robbins was called to the chair; the minutes of the last meeting were read, and, on motion, adopted.

Mr. A. P. Brown presented to the College a mounted specimen of kinate of quinia for the microscope; this salt has lately been brought into notice by the Messrs. Beck of London, who claimed that they were the only parties preparing it.

Prof. Maisch presented, on behalf of Messrs. Wm. H. Deprez and Chas. Morrison, of Shelbyville, Ind., a handsome specimen of the common puff ball, Lycoperdon bovista, *Lin.*, or Bovista gigantea, *Nees*, belonging to the Nat. Ord. Fungi; it has no use at present in pharmacy, but formerly was employed as an absorbent like punk.

Prof. Maisch also presented, from Mr. G J. Luhn, of Charleston, S. C., specimens of the so called black or long moss, which is indigenous to and common in the Southern States; it is an air plant, deriving its nourishment from the atmosphere, and is used as a packing material, for filling matrasses, etc. It is the Tillandsia usneoides of Linnæus—Nat. Ord. Bromeliacæ.

Prof. Remington exhibited and explained a press adapted to the uses of the pharmacist, made by the Enterprise Manufacturing Company of this city, suited more especially for obtaining fruit juice and expressing the liquids from bulky matters like arnica flowers, hops, etc.

Mr. Wm. B. Thompson presented to the meeting, for the cabinet of the College, an unusually large specimen of rhubarb root. The same gentleman also read a paper about the various *kinds of pills* (see page 586) now urged by different manufacturers upon the attention of physicians and pharmacists. The paper drew out remarks from several members endorsing the views entertained by the writer, more particularly as to the effects of manufacturing pharmaceutical preparations upon the dispensing business Facts were also given to show that medical men were returning to the time-honored, extemporaneously made pills. A member present expressed the hope that some member who had the time would take up the question of the abuse of fluid extracts in making tinctures, syrups and other weaker preparations of the drugs thus represented

Mr. F. L. Slocum, a member of the present class, exhibited an *improved lozenge board* adapted to making the flat or disk shaped lozenges; this apparatus was commented upon, and its efficiency and simplicity much approved of; it was suggested that the strips might be still more securely held in position by means of set-screws. A description of it will be found on page 589.

A paper upon the *alleged toxic effect of artificial vanillin*, by Mr. L. Wolff, was

read by Prof. Remington (see page 584). Prof. Sadtler explained the process by which artificial vanillin is prepared, and stated that he had never heard of its having been regarded as injurious. Other members expressed similar views, and suggested that the fears might have originated through a misunderstanding or from parties whose interests are likely to be affected by the use of this product.

Prof. Maisch read a paper upon *the alkaloid of Baptisia tinctoria*, by Dr. F. V. Greene, U. S. N. (see page 577); on motion, a vote of thanks was returned to Dr. Greene for this and other very interesting papers that he has presented to the College embodying the results of both patience and skill in working them out so successfully.

Prof. Maisch read a paper upon *the supposed alkaloid of podophyllum* (see page 580). In the discussion which followed the value of the group tests for alkaloids was alluded to, and Prof. Maisch stated that these, like most other reactions obtained with such complicated solutions like tinctures and infusions of vegetables, afforded at most only presumptive but not conclusive evidence of the presence of the compounds indicated.

Mr Frank H. Rosengarten presented, through Prof. Maisch, a very handsome specimen of *Salicylate of Cinchonidia*, which was accompanied by the following note:

"SALICYLATE OF CINCHONIDIA.—The valuable medicinal properties of cinchonidia and salicylic acid are well known. Thinking the combination of the acid with cinchonidia might be used as a remedy, the writer has prepared a quantity of salicylate of cinchonidia to have its efficacy tested The salt is neutral and crystalline, readily soluble in dilute alcohol, difficultly soluble in hot water and almost insoluble in cold water. It is slightly acid or neutral to litmus paper, and with iron salts gives a purple-black color when in solution. It is prepared by the direct combination of pure cinchonidia with salicylic acid and crystallization, care being taken to have them just neutralized. FRANK H. ROSENGARTEN."

There being no further business, on motion, adjourned.

THOS. S. WIEGAND, *Registrar.*

PHARMACEUTICAL COLLEGES AND ASSOCIATIONS.

Alumni Association Philadelphia College of Pharmacy.—The second Social Meeting was held November 13th, President Krewson in the chair. Twenty members and visitors, including a committee of the Zeta Phi Society, were present. Owing to the absence of the Secretary the reading of the minutes was dispensed with, and Dr. Richard V. Mattison appointed Secretary *pro tem.*

Various processes for preparing an *elixir of cinchona and iron* were discussed, and it was stated that for this purpose the use of the cinchona alkaloids was generally preferred, more particularly by manufacturers, as yielding a more elegant and uniform preparation than can be obtained from cinchona bark.

The change of color, occuring in elixirs containing *ferric pyrophosphate*, was alluded to, and it was stated by Dr. Mattison that if this preparation be made by dissolving precipitated ferric pyrophosphate in sodium citrate instead of ammonium citrate, the change was prevented, while its therapeutic properties were in no way interfered with.

Mr. Trimble presented a specimen of *Sarcosin* or methyl-glycocol, and stated that while the simplest method of preparation was by the action of monochloracetic acid upon methylamin, yet his experience in the preparation of monochloracetic acid had been such as to lead him to prefer to make the sarcosin from meat. He chopped fifteen pounds of lean beef finely, and exhausted it with water. This solution was then boiled to coagulate the albumenoids, after which the sulphates and phosphates were removed by means of baryta water, and the solution concentrated until the creatin crystallized out. By boiling the creatin afterward with baryta water, it is split up into urea and sarcosin, which latter crystallizes in brilliant rhombic prisms, having a burning sweet taste. The whole product obtained from the fifteen pounds of meat, including imperfect crystals, was about three grams. The medical uses of sarcosin being referred to, Dr. Mattison stated that it had been used to some extent, and with good success, in gout, and with less success in acute articular rheumatism.

Specimens of benzoic acid, prepared from wine and from benzoin, were exhibited by Dr. Mattison; ammonium benzoate, handsomely crystallized by Geo. W. Hayes, a member of the present class; nine specimens of organic Materia Medica by Mr. J. E. Cook, and six specimens of chemicals by Mr. W. G. Moorhead.

Pharmaceutical Association of South Carolina.—At the annual meeting, held November 19th, in Charleston, the following officers were elected: President, C. F. Pauknin, Charleston; Vice Presidents—Dr. H. Baer, Charleston, and C. J. Dunlap, Camden; Secretary and Treasurer, Dr. E. H. Kellers, Charleston; Board of Examiners, A. W. Eckel, Chairman, G. J. Luhn, A. H. Schwacke and C. O. Michaelis.

Missouri State Pharmaceutical Association.—In pursuance to a general call made, about sixty pharmacists and druggists of Missouri assembled at White's Hall in the city of Sedalia on the morning of October 29th. Mr. P. S. Hocker, of Boone, was elected temporary chairman, and F. R. Dimmitt Secretary. A committee on permanent organization was appointed, and afterwards the following permanent officers were elected:

President, Dr. R. T. Miller, Sedalia; Vice Presidents—J. F. Hurt, Columbia; Dr. A. H. Caffee, Carthage; M. W. Alexander, St. Louis; Treasurer, P. H. Franklin, Miami; Secretary, F. R. Dimmitt, Columbia; Corresponding Secretary, H. C. Brown, Moberly.

The constitution and by-laws, presented by a committee appointed for the purpose, were considered and adopted, after which the following resolutions were carried:

Resolved, That it is our object and aim in this convention to elevate our profession, and if possible to separate ourselves from former interlopers and pretended druggists.

Resolved, That we ignore and absolutely condemn all attempts of any person whatsoever, under the guise of a druggist, to bring reproach upon our profession

Resolved, We do not desire or intend to evade or knowingly violate any statutory law enacted by the Legislature of the State of Missouri.

Resolved, We believe the stringency of the present drug laws of Missouri is unnecessary, so far as legitimate druggists are concerned; that it is detrimental to the commonwealth of the State, and impracticable in many cases which necessarily come up in dispensing medicine.

Resolved, That this convention present to Governor Phelps a memorial request him, that if he should call the Legislature together prior to the sitting of the next general assembly of the State of Missouri, to embody in his proclamation the consideration of a law tending to elevate our profession and protect us against intrusion by designing persons.

The Executive Committee was directed to secure a seal for the association and to select delegates to attend the next meeting of the American Pnarmaceutical Association at Saratoga. Five hundred copies of the proceedings were ordered to be printed, and the President was requested to correspond with members with a view of securing several essays at the next meeting, which is to be held at Moberly on the fourth Tuesday in October, 1880.

Pharmaceutical Society of Great Britain.—At the pharmaceutical meeting, held November 7th, Mr. Thos. Greenish in the chair, a large number of specimens presented to the museum were exhibited, among them a collection of over one hundred American drugs, presented by the Philadelphia College of Pharmacy; *Mozambique opium* containing 4 per cent. of morphia, 4·3 of narcotina and a large percentage of water; a stomach of the South American ostrich, *Rhea americana*, which is used in the same manner as pepsin, but apparently has very little digestive power; *Jaferabad aloes*, sold in the bazaars in India in the form of flat cakes, and not like the Aden aloes reddened by nitric acid; the fruit of *Luffa ægyptiaca*, which, with the outer skin and seeds removed, is coming into use as a flesh glove, for which it answers admirably well and is very lasting. A specimen of *oil of ginger grass* or *rusa oil*, prepared by Dr. Dymock, was ascertained to have been distilled from a plant differing from Andropogon Schœnanthus, *Lin*, and to have a slightly different, somewhat caraway-like odor, and a rotatory power of +39·65°, whereas the true oil of ginger grass rotates polarized light only +1·72°.

Several specimens of *spurious matico* were shown, one being *Artanthe adunca* ("Am. Jour. Pharm.," 1864, p. 118), while another was a singular variety of the true matico (*β*. cordulatum, D. C.), which differs from the typical plant in having the leaves nearly smooth and without the wrinkled appearance of the true drug. A third kind was a species of pepper, which had been imported as "matico aromatica;" it has a strong aromatic odor, somewhat resembling anise, and the leaves are smooth and nearly ovate in outline.

Mr. Davies called attention to a series of specimens showing the results obtained in dispensing a prescription containing *tincture of sumbul*, *carbonate of ammonium* and camphor water, with tincture of sumbul obtained from various sources. In some cases there had been a green coloration due possibly to the presence of umbelliferon, and in others not, and there were other differences. He also showed specimens of the roots from which the tinctures had been made. Prof. Bentley found the principal part of the root to be true sumbul. In the discussion attention was called to the false sumbul root, noticed by Pereira, J. B. Allen and F. J. Hanbury, and by

Holmes and Dymock, proved to be ammoniacum root colored and scented; also to the variation in the color of tincture of sumbul, the cause of which remains to be investigated.

A paper on *Taraxacum*, by Chas. Symes, Ph.D., was read in which the author referred to the views regarding the proper time for collecting the root; his own experience points to November as the month in which taraxacum roots should be gathered for medicinal use, the period being extended to the beginning of December, if the winter has not commenced early; at this period they contain a large quantity of inulin, but the active principle taraxacin is more fully developed (if bitterness is any criterion) than at any other period, and the inulin can be separated from the expressed juice far more readily than the saccharine matter, which abounds in the spring. No sooner does the frosty weather set in than the roots become sweet, and experiment led to the conclusion that the bitter principle became more or less altered in character, and that its distruction probably went on *pari passu* with that of the inulin. The solid extract of taraxacum is not regarded by medical men as an agent of much activity, except in large doses. The succus on the other hand, when well prepared and moderately fresh, is a good representative of the medicinal properties of the root. When, however, it is kept for any length of time, and, more especially in warm weather, it often becomes turbid, deposits and sometimes ferments, losing much of its bitterness, and this will, as a matter of course, occur much more readily in the presence of a large quantity of saccharine matter than in its comparative absence. An increase of 5 per cent. of spirit to the succus is proposed, and attention was drawn to the fluid extract officinal in the United States Pharmacopœia. Of three samples exhibited one was at least three years old, one had been recently prepared from roots a year old, and the third from roots collected and dried about ten days previous; all three were decidedly bitter. As the autumnal roots lose 75 per cent. of moisture in drying, each fluidrachm represents at least four times the quantity of fresh root.

The discussion on this paper elicited the fact that the collection of taraxacum root after frost was generally considered inadmissible; but Mr. Postans considered the time from July to September as the most suitable, and Prof. Bentley suggested the spring. Several members regarded the succus as meeting all the wants for a liquid preparation of taraxacum, and considered a fluid extract unnecessary. In filtering the magma of expressed juice and spirit, it should be done out of contact with air as much as possible. The time elapsing between the collection and the use of the root was likewise referred to as being of great importance in preserving the medicinal properties.

A Turkish Pharmaceutical Society.—On June 9th last twenty five of the pharmaciens of Constantinople met at the rooms of the Society of Medicine of that city and formed a Society of Pharmacy for the Ottoman Empire. The scheme was urged with much energy in a speech by M. Pierre Apery, whose father, M. Nicolas Apery, presided at this meeting as the oldest member of the profession present. A *bureau* was at once formed, C. Bonkowski Effendi being chosen President; M. A. Matcovich, Vice-President; M. J. Zanni, General Secretary; M. P. Apery, Special

Secretary; M. G. Sirnan, Treasurer, and M. Helm, Librarian. The articles of the Society were drawn up and agreed to. The annual subscription was fixed at 6 silver medjidiés—about an English guinea—with an extra half-sovereign to pay for the diploma. Besides, every member is required to contribute a work of pharmaceutical interest to the library. A member is to be expelled who, after two public warnings from the President, after committee reports, shall continue to seek to sow discord in the Society. Every candidate for membership must be a "master in pharmacy" of some recognized faculty. The Society is to exist so long as it counts twelve resident members.

On July 7th the Society met in the regular way for the first time. A summary of its proceedings will sufficiently dispose of the old-established belief that the Turk is especially remarkable for his laziness. The minutes of the previous meeting having been read and confirmed, the Secretary reported the correspondence which had taken place; the President announced that 140 members had joined the Society; the Treasurer submitted his report; the parchment for the diplomas was ordered from Paris; five business committees were appointed and six other committees formed on the suggestion of the President, whose duties will be to study the pharmaceutical journals and memoirs, both home and foreign, and report in turn to the Society the results of their reading. There are appointed for this work committees for French, English, Turkish, German, Italian and Greek journals.

M. Matcovich next read a paper advocating the limitation of pharmacies in Turkey. This was the condition in the Ottoman Empire formerly, but in 1861 the trade was made open to anyone on the recommendation of a commission composed entirely of French educated physicians. All that is now necessary is that the pharmacien shall be diplomaed, and shall keep in stock medicines according to an official list. The result, said the author, has been that out of 212 pharmacies in the capital there are 170 whose proprietors have only a capital of from 15*l.* to 20*l.*, or just enough to buy the official stock. The paper showed how negligent the authorities had proved themselves in preventing illegitimate competition, though severe in their inspection of pharmacies, and in the enforcement of all the laws against pharmaciens. Another paper, on salicylic acid, was read by M. Zanni, a third by M. P. Apery on some chemico-legal investigations in a supposed case of poisoning, which led to a discussion. Then the President read a report on the inspection of food and drink in the city.

Munir Effendi, the Minister of Public Instruction, had been present at the *séance* up to this point, and after expressing his great satisfaction at what he had heard, and promising support to the Society on behalf of the government, he withdrew.

Further discussion followed on the establishment of a journal, a laboratory and a museum; some more official business was got through, and the session terminated. —*Chemist and Druggist.*

The Pharmaceutical Society of New South Wales held its third annual meeting at the Society's rooms in Sidney, July 11th, M. F. Senior, J. P., in the chair. Reports of the officers were read and acted on, and a petition to the Legislative

Assembly was adopted, praying for certain modifications relative to pharmaceutical chemists in the medical bill then pending before Parliament.

The retiring members of Council, Messrs. F. Senior, A. J. Watt and J. S. Abraham, were re-elected for the next twelve months.

EDITORIAL DEPARTMENT.

The International Pharmacopœia.—It will be remembered that at the International Pharmaceutical Congress, held at St. Petersburg in 1874, the Paris Pharmaceutical Society presented the draft of a *Universal Pharmacopœia*, which had been elaborated at the request of the preceding International Pharmaceutical Congress at Vienna. This work was distributed amongst the delegates for examination and correction, and the reports were sent to the Pharmaceutical Society at St. Petersburg, by which body it was to be finally revised and printed for distribution among the various pharmaceutical societies (see "Amer. Jour. Pharm.," 1874, p. 489; 1875, p. 474) At the International Medical Congress, held in Geneva in 1877, it was stated that the International Pharmacopœia had been translated into Latin, and would in a few months be printed and distributed (*Ibid*, 1877, p. 612). However, a series of resolutions were adopted, and a committee was appointed charged with the further consideration of this subject.

This committee reported through Prof. Gille, of Brussels, to the International Medical Congress, held at Amsterdam in September last, and the printed report entitled, "Pharmacopée universelle et uniformité en médecine," is now before us. It appears from this report that the committee appointed at Geneva communicated the action of the Congress to the President of the Pharmaceutical Society of St. Petersburg, and that the latter body, in July last, returned the pharmacopœia elaborated by the Paris Society to Mr Méhu without a word of explanation, after it had in the preceding March resolved not to take part in the next International Pharmaceutical Congress, which was to meet in London during the past summer, but has been postponed. Under these circumstances it was recommended to, and adopted by, the Congress at Amsterdam, that the committee be authorized to select a government through which to open negotiations with other governments with a view to the appointment of delegates to an International Commission, charged with the further elaboration of the project already accepted by pharmaceutical congresses. This commission, it is proposed, should convene immediately after the appointments have been made, and the members should report every two years to their respective governments and to the International Medical Congress. The Paris Pharmaceutical Society was invited to communicate its draft of an international pharmacopœia for the purpose of publishing the same with the Proceedings of the Congress at Amsterdam, or as soon as possible.

The various recommendations were adopted, and the committee selected at Geneva was increased by the appointment of Messrs. Sayre of New York, Dechambre of Paris, Ernest Hart of London, Warlomont of Brussels, Guye of Amsterdam and Palasciano of Naples.

Thus far the draft of an international pharmacopœia has become known, only, we believe, through a paper read by Mr. Francis Sutton before the Pharmaceutical Society of Great Britain in 1875 (see "Amer. Jour. Phar.," 1875, p. 136), and from the features described it appears that the aim is directed towards a *universal* pharmacopœia, which should be recognized in all civilized countries. At the second Pharmaceutical Congress, held at Paris in 1867, this project had been discussed, and was adopted by the votes of all the delegates present except those from the United States (Great Britain was not represented), for reasons which were embodied in a report sent to the American Pharmaceutical Association, and also one read before the Philadelphia College of Pharmacy ("Amer. Jour. Phar.," 1867, p. 561). One of the reasons of opposition on the part of the American delegation, viz., the great difference in strength of some important preparations in various countries, furnishes one of the most urgent arguments in favor of the project of "uniformity in medicine." Tinctura opii, for instance, differs more or less, as furnished upon a physician's prescription in the United States, Great Britain, France and Germany; there is no reason why under this name the same preparation should not be obtained in any country. But each country has important remedies which are little or not at all known in other countries, and a *universal* pharmacopœia will, in our opinion, on that account be impossible for many years to come, unless the same would confine itself to the *principal* and *most active* medicines used in every country, and leave to each nation or section the choice of other remedies of less importance which may be known in that locality. The views expressed by Prof. Redwood in 1875 are nearly the same entertained by us, and which may be concisely stated as being in opposition to a *universal*, but in favor of an *international* pharmacopœia.

In this connection we may be permitted to refer to a paper by Dr. C. H. Thomas (see "Amer. Jour. Phar.," 1874, p. 317), advocating such measures for the harmonizing of the British and United States Pharmacopœias; and we believe that the same views may be made to apply to the pharmacopœias of all other countries. While a perfect uniformity of nomenclature seems to be impossible at present, it is still feasible that under well-known synonyms only identical preparations should be dispensed, and that the same name should not, in different countries, have a different meaning as regards composition and strength, at least in those cases where the more active medicines are concerned.

The Pennsylvania Patent Medicine Tax.—In addition to the decision of the Court of Common Pleas of Pittsburg, which we published on page 107 of the present volume, we have to record a similar decision in Philadelphia, in the case of the Commonwealth *vs.* C. L. Mitchell, which was taken before Recorder Lane b the Druggists' Trade Association. The action was brought under the act of Apri 10th, 1849, for the recovery of the amount due for a license as vender of patent medicines; and it was decided by the Recorder, on October 2d, that the defendan having paid a license as a vender of drugs and medicines, under the Act of April 7th, 1830, was not liable to be assessed under the Act of 1849, and judgment was given accordingly.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Medicinal Plants, being descriptions, with original figures, of the principal plants employed in medicine, and an account of their properties and uses. By Robert Bentley, F.L.S, and Henry Trimen, M.B., F.L.S. Philadelphia: Lindsay & Blakiston. Price, per part, $2.00.

This magnificent work is now nearly completed. Parts 39 and 40, now before us, contain the well executed plates and full descriptions of the following plants: Aloe spicata, *Lin. f.*; Aloe succotrina, *Lam.*; Balsamodendron myrrha, *Nees*; Cetraria islandica, *Ach.*; Chondrous crispus, *Lyngbye*; Cinchona calisaya, *Wed.*; C. cordifolia, *Mutis*; C. officinalis, *Lin.*; C. succirubra, *Pavon*; Claviceps purpurea, *Tulasne*; Cuminum cyminum, *Lin.*; Fucus vesiculosus, *Lin.*; Gentiana lutea, *Lin.*; Gracilaria lichenoides, *Greville*, and Roccella tinctoria, *D. C.*

The Throat and the Voice. By J. Solis Cohen, M.D. Philadelphia: Lindsay & Blakiston. 16mo, pp. 159. Price, cloth, 50 cents.

The subject of this, the fifth of the series of American Health Primers, could scarcely have been referred to more competent hands than those of the author, who has furnished an essay which will be read with great interest. In the first part of this little work the general construction of the throat, the care it requires, and the various diseases to which it is subject, are treated; while the second part treats of he voice, its acoustics, varieties, organ, culture, improper use, gymnastics, defects and care.

The Mouth and the Teeth. By J. W. White, M.D., D.D.S., Editor of the "Dental Cosmos." Philadelphia: Lindsay and Blakiston, 1879, 16vo., pp. 150. Price, cloth, 50 cents.

As one of the American Health Primers this little volume will doubtless be duly appreciated by all who value the preservation of the health of the mouth, and more particularly of the teeth, of whose anatomy, development and various relations the book chiefly treats. The chapters treating of the decay of the teeth and its causes, and of the hygiene of the mouth, offer much sound advice. The book is illustrated with a number of instructive wood cuts.

Die Grundlehren der Chemie. Für den Studirenden kurz dargestellt von Prof. Dr. Alex. Naumann. Heidelberg: Carl Winter's Universitäts-Buchhandlung, 1879. 8vo, pp. 226.

Principles of Chemistry for the use of Students.

Commencing with the consideration of the aims and objects of chemistry the work treats in its first part of "matter and energy or force," neither of which can be created or destroyed. Element, atom and molecule are philosophically defined, and the methods for ascertaining molecular and atomic weights elicited from the density of the elements and their compounds while in the gaseous state, and from the specific

heat of the same bodies. This leads to the quantivalence of the elements, deduced either from the nature of their simple compounds capable of existing in the gaseous state, or from the behavior of their compounds with other elements. These considerations form the basis for the second part, which treats of "chemical constitution," and elaborates more especially the theories, which are at present received as correct. The object of giving a concise but comprehensive outline of the views entertained, together with the requisite proofs, is not overlooked; but in its elucidation a more detailed account of various compounds and classes of compounds has very properly been deemed advisable.

The third part, "chemical reactions," is equally comprehensive in treating of the decomposition of gaseous, liquid and solid compounds, followed by the thermochemical confirmation of the correctness of the processes generally adopted for the separation of the metals in groups by sulphuretted hydrogen.

We regard the work as a very excellent one for the use of students of chemistry; it gives the theories at present recognized in this science, and it furnishes the proofs for the correctness of these views according to the most elaborate investigations based upon our knowledge of natural laws.

Ueber die Beziehungen zwischen chemischen Bestandtheilen und Botanischen Eigenthümlichkeiten der Pflanzen. Von G. Dragendorff. 8vo, pp. 48.

On the relations between the chemical constituents and botanical characteristics of plants.

The subject of this essay is similar to that treated by Professor Herlandt, of whose essay we published a condensed account in our last volume, pages 520 to 536. But while the latter treated this matter chiefly from a pharmacological standpoint, Prof. Dragendorff examines it from a general botanical, more especially from a phyto-chemical view. The author's essay is based upon a lecture delivered on this subject at Dorpat in December, 1876, and comprises a general review of what is known of the most important constituents of the various natural orders and tribes of plants; it is on that account not adapted for making an abstract; but we take pleasure in directing the attention of our readers who are interested in the subject to this paper, which was published in full in the Russian "Pharmaceutical Journal" (St. Petersburg) for 1879.

Tobacco Poisoning and its Effects upon the Eye-sight. By. C. W. Calhoun, M. D. Atlanta, Ga. pp. 8.

A reprint from the Transactions of the Medical Association of Georgia.

The Physician's Visiting List for 1880. Philadelphia: Lindsay & Blakiston.

This annual has reached the twenty-ninth year of its publication, which proves its usefulness to those for whom it is intended. In addition to the general information embraced in the preliminary pages, the present issue contains a valuable and very practical contribution on the decimal system from the pen of Prof. Oscar Oldberg.

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TO VOL LI (VOL. IX, FOURTH SERIES), OF THE AMERICAN JOURNAL OF PHARMACY.